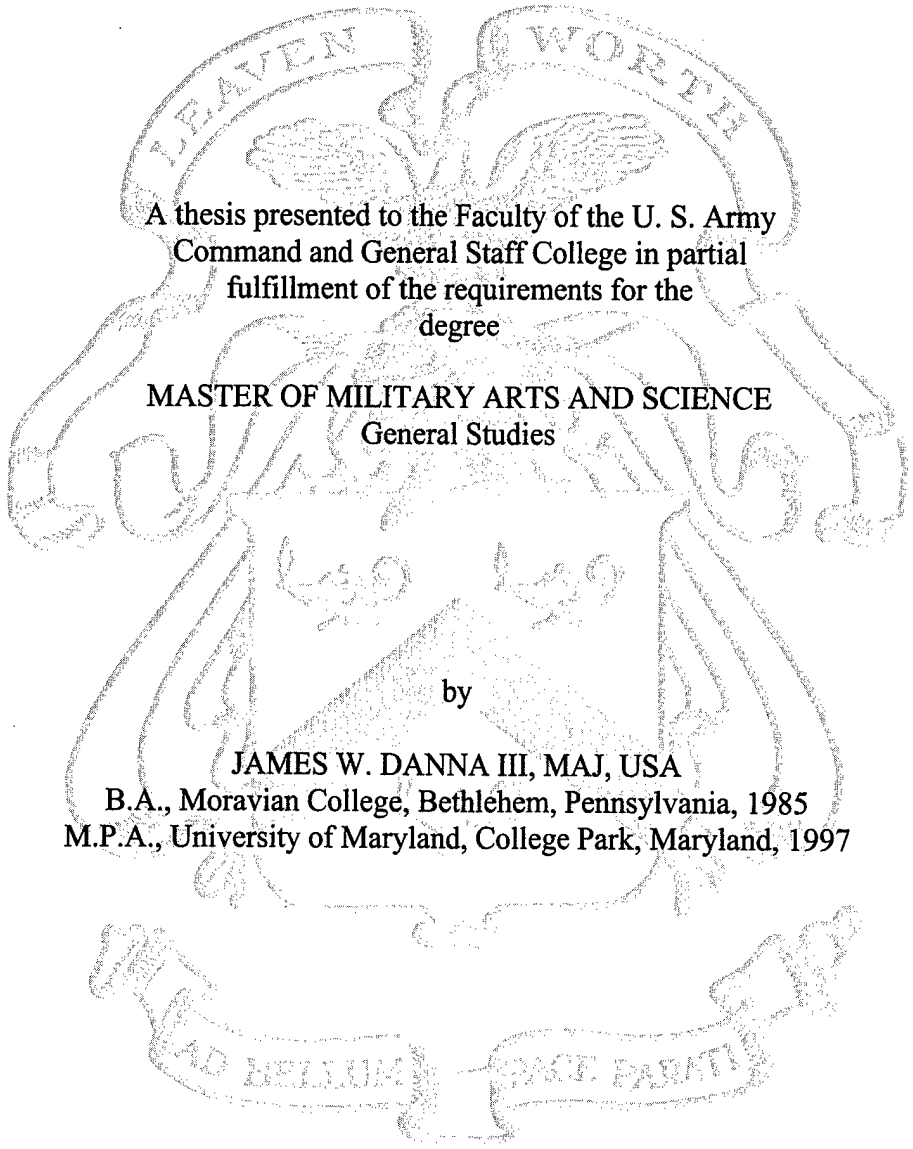
THE OPTIMAL TRAINING PROGRAM FOR AN INFANTRY BATTALION



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by

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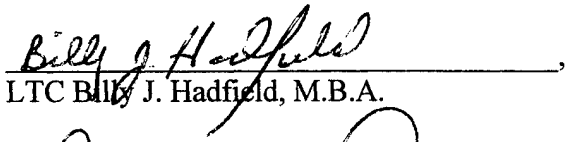

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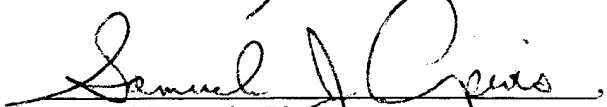

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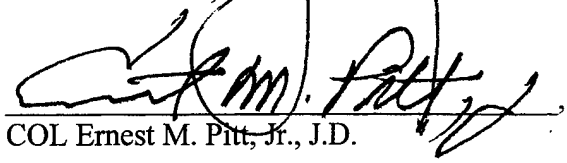

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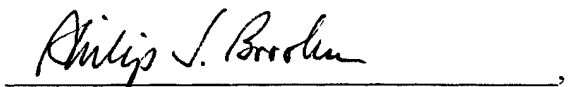

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ABSTRACT

THE OPTIMAL TRAINING PROGRAM FOR AN INFANTRY BATTALION by MAJ James W. Danna III, USA, 85 pages.

This study analyzes the training strategies and methodologies of American infantry battalions between World War II and the present. From historical analysis in combination with the author's personal observations it is possible to understand the critical components of ground combat. These critical components of ground combat represent the core of infantry tactics that support individual through battalion level collective operations. Additionally, this study also examines the strengths and weakness of the Army's training doctrine and how it is being implemented. In the conclusion, the study makes a recommendation for the optimal training program that focuses on the critical components of ground combat and the recommended strategy to train them.

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CHAPTER 1

INTRODUCTION

Training is critical to success of an infantry battalion in combat. The statement seems in itself is rather obvious. It is like saying that conditioning is critical to a world class runner preparing for the Olympics. But when examined more closely, it becomes less obvious. What type of training is best to prepare the runner? Aerobic conditioning, anaerobic strength training, flexibility, nutrition and diet? Which type of conditioning is focused on over the others? Which type of training produces the best results? Should a combination of the different types training be used? If so, what percentages are allocated to each type? Training a world class runner for a high level competition such as the Olympic Games is a complex undertaking. It is much more than just working hard and preparing for the Olympics.

Training an infantry battalion for combat is just as complex of an undertaking. This thesis intends to examine this complex undertaking and define what is the appropriate training strategy required for a battalion as it prepares for its wartime mission. My interest in this topic began years ago as a brand new second lieutenant assigned to my first infantry battalion when consistently told by my superiors that training is the most important thing we do in this outfit. Their descriptions of training were particularly interesting. They always spoke in qualifying terms such as we train to standard not time, and realism in training is very important. When pressed for specifics on what we needed to train on, how to train on it, and more importantly why it was important to our wartime mission, they could provide few details. We trained on certain

tasks because the unit had always done it that way. In short - my superiors could not articulate why what we were training on was critical to our wartime mission. Additionally, by not being able to identify this link, we could not tell if what we were doing was effective.

It is important to remember the time frame of the above-described events. This was late 1985 early 1986 and the effects of the Army's new Battle Focused Training doctrine were just beginning to be felt throughout the force[1]. Mission Training Plans (MTPs) were not yet fully developed as an Army wide standard. The first infantry MTPs (7-8 Rifle Squad, 7-10 Rifle Company, 7-20 Infantry Battalion) would not be published until 1988. These publications significantly contributed to clarifying the what part of training. They also developed clear tasks, conditions, and standards that were applicable Army wide. However they failed to address the how to train portion of the equation.

Throughout the years since 1985 the question of what is the optimum training strategy consistently gained my attention. Every unit I was assigned to wrestled with this issue, some better than others. A variety of techniques have been used with varying results. The choice of what technique to use was often up to the senior commander's experience and judgment. The results normally corresponded to the experience of the senior commander who dictated training guidance and policies. What has interested me all of these years is the idea that little to no use has been made of historical case studies that documented successful (and for that matter unsuccessful) battalions in combat and the training strategies they used for preparation. This study proposes to research all the

evidence available and bring these trends to light and offer a formula for developing the optimum training program.

This question has the same relevance today as it did for me in 1985. In fact today, one could argue that it is more acute. First, with diminishing resources and increased operational deployments, our infantry battalions must be prepared to meet a variety of contingencies with little or no notice. Second, the nation has entrusted us with her most precious resource, the life and blood of her soldiers. It is our duty to train and prepare these soldiers to accomplish their mission with the least cost possible.

Assumptions

First and foremost assumption, there is enough research material available to illuminate the research question. Numerous sources are available ranging from Army doctrine, first and second-hand accounts of combat actions, and independent research and analysis programs. Second assumption, the optimal training program for an infantry battalion can be defined. This is based on the idea that with all the research material and evidence available reference successful and unsuccessful performances in combat that one could extrapolate the data and determine what were the reasons behind success and failure. Third, assumption that the critical components of ground combat can be identified. Once identified, a training program can be created to address these components.

Additionally, it is not my intent to identify a one and only solution by defining the optimal training program. Rather, the intent is to identify the parameters of success in ground combat and to focus an infantry battalion in developing its training programs.

Definitions

For the purpose of this research the following definitions have been established. The terms defined below will be used consistently throughout this report:

Training. The instruction of personnel to individually and collectively increase their capacity to perform specific military functions and tasks. Training is further defined in three areas:

1. Institutional. Taught at all Training and Doctrine Command (TRADOC) facilities or installations. To include Initial Entry Training (IET), Leader Training (Officer and Non-Commissioned Officer), and specialized individual and unit training programs (ranger, airborne, pathfinder, etc.).

2. Functional. Prescribed standardized program that addresses a specific function. These training programs are characterized by clearly defined tasks, the conditions which these task are expected to be performed, and finally standards that define success. Examples are weapons qualification, common task training (CTT), crew and battle drill training, and Expert Infantryman's Badge (EIB) training.

3. Combat Training. Consist of programs that emphasize preparations for the challenges and rigors of the battlefield. This type of training focuses on mission accomplishment with a tactical purpose under uncertain and changing conditions as opposed to a tactical task under known conditions.

Wartime Mission. An expression of what a unit must accomplish and for what purpose as expected in its most likely combat contingency.

Mission Essential Tasks Lists (METL. Selected tasks that must be successfully performed if a unit is to accomplish its wartime mission.

Army Training and Evaluation Program (ARTEP). Program designed to measure the demonstrated ability of units to accomplish specified training objectives.

Combat Training Centers (CTCs). Army program designed to provide realistic joint service and combined arms training in accordance with Army doctrine. It is designed to provide units with training opportunities on the most realistic battlefield available during peacetime. Three pillars makeup each CTC: a professional cadre of Observer Controllers (OCs), a instrumentation system designed to give immediate empirical feedback, and a professional opposing force (OPFOR).

Take Home Package (THP). Product given to each unit upon completion of a CTC rotation. It discusses observed strengths and weaknesses and provides recommendations for improvement in home station training. All other definitions will comply with United States Army standards in accordance with FM 101-5-1, 30 September 1997 version, Operational Terms, Symbols, and Graphics.

Limitations

This research topic covers the training program for a United States Army infantry battalion as it prepares to accomplish its assigned wartime mission. The definition of battalion includes light, mechanized, airborne, air assault infantry, and ranger. Special operations forces (many, which are infantry skills, based) are not addressed here. The focus is on individual and collective training within an infantry battalion. This includes individual, buddy team, fire team, squad, platoon, company and battalion. The primary

focus is on functional and combat training in units, not institutional training. This study covers infantry battalions from World War II until the present. The build up of the Army in the pre war period, defined as 1939-1941, is also included.

Delimitation

This study does not cover specialized training or leader training, except as they may relate to combat training in units. All of these factors are important in the determining the reasons for excellence in combat units. However, researching them fully is beyond the scope of this thesis. Additionally, foreign armies are not examined in this study. Too many additional variables, that cannot be sufficiently researched, involving the training proficiency of these forces are involved and beyond the scope of this study.

Research Methodology

The overall purpose of this study is to demonstrate the reasons for success or failure in execution of infantry ground combat operations and to develop a training program that leads to success. The research methodology employed in this thesis is a combination of historical and case study analysis combined with personnel observations. Historical documents cover first and second-hand accounts of unit's performances in combat or simulated combat training exercises. These accounts range in time from World War II to the present day. The authors are generally commanders of units or personnel with experience in infantry ground combat operations. Case studies involve an analysis conducted by an independent research agency of infantry units in combat or simulated combat training exercises. Both the historical accounts and case studies span a broad range of conditions and situations. A deliberate effort was made to seek as diverse a

sampling as possible as to best establish the true reasons behind success and failure in ground combat. Additionally, every effort was made to include both mechanized and light infantry units. The critical components of ground combat must be applicable to the full range of infantry units within the force.

Finally, my personnel observations of 13 years experience training infantry units for ground combat operations. My experiences include positions ranging from rifle platoon leader through battalion operations officer in both mechanized and light infantry units. Additionally, working as an observer controller and Opposing Forces (OPFOR) company commander and operations officer at the Combat Maneuver Training Center (CMTC) in Hohenfels Germany.

The three components of this research methodology allow for an objective view on the subject by combining a variety of methods to verify the findings. Each component has its strengths and weaknesses and by combining the three some of the bias can be mitigated.

Two data collection methodologies are used: document analysis and participant observation. These two methodologies are the most adequate and efficient available considering the nature of the subject. This is based on the assumption that with all the research material and evidence available that one can extrapolate the data and determine what were the critical components of ground combat operations. Once the critical components have been identified, it can be determined what training events are required to address these critical components. Finally, once the training events have been

identified, the optimal training strategy that best prepares and sustains an infantry unit on the critical components of ground combat operations can be identified as well.

Organization

This study examines the preparation and performance in combat of infantry units from the pre World War II build-up to the present day. Chapter 1 sets the parameters for the study and the research methodology to be used. Chapter 2 reviews the relevant literature on the subject that ranges from Army training doctrine to historical first and second hand accounts, and case studies concerning units in preparation for and in execution of ground combat operations. After having established an understanding of the relevant literature, it will be demonstrated in chapter 3 that there are eight critical components of ground combat operations. These eight critical components are dominant in all of the literature and personal observations. They are as follows:

1. Physical Fitness
2. Weapons Proficiency
3. Unit Cohesion
4. Reaction to Stress
5. Mastery of Collective Tasks / Battle Drills
6. Integration of Combined Arms
7. Leadership
8. Developing Initiative

Finally, chapter 4 develops the optimal training program that incorporates the eight critical components of ground combat into the right mix and match of training

events and frequency of execution that best prepares an infantry battalion for success in ground combat.

The significance of this study is simple. Short of actual combat, training for combat is the number one priority for infantry battalions. Today's environment of increased mission requirements and reduced training opportunities demands that training programs be as efficient as possible. Identifying the optimal training program for success in ground combat is critical to success in this environment. Additionally, and most important, saving the lives of United States Army soldiers by best preparing them for ground combat operations in peacetime so they do not learn the bloody lessons in the first battle.

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1 Development of Army Training Doctrine as currently outlined in Field Manuals (FMs) 25-100 and 25-101, as well as Army Training and Evaluation Programs (ARTEPs) Mission Training Plans (MTPs) which outlined specific training strategies designed to achieve unit proficiency for a specific battle mission .

CHAPTER 2

LITERATURE REVIEW

The following categories of relevant literature have been selected for investigation:

1. United States Army doctrinal manuals concerning training, training management, and resource management.

2. First and second hand accounts of infantry units in combat or simulated combat training exercises.

3. Case studies of infantry units in combat or simulated combat training exercises conducted by independent research agencies.

4. Previous studies conducted by the Army, specifically United States Army War College and Command and General Staff College students.

The majority of the literature involving this topic covers the combat or simulated combat performance of various infantry units. Analysis of what the unit did in preparation for deployment and how that preparation effected their performance in combat varies among the available literature.

United States Army Doctrinal Training References

The first source of reference is the Army's doctrinal training references. The 25-100 series of Field Manuals (FMs) is the Army's capstone training documents. FM 25-100(Training the Force) and FM 25-101(Battle Focused Training) present the concept of battle focused training in which a peacetime training requirements are derived from a commander's analysis of his war time mission. FM 25-100 outlines the principles of

training which serve as broad guidelines for commanders and units to develop training concepts and plans. These principles are as follows:

1. Train as a Combined Arms Team
2. Train as You Fight
3. Use Appropriate Doctrine
4. Use Performance Oriented Training
5. Train to Challenge
6. Train to Sustain Proficiency
7. Train Using Multi-Echelon Techniques
8. Train to Maintain
9. Make Commanders the Primary Trainers

While FM 25-100 establishes Army training doctrine, FM 25-101 applies this doctrine and assists leaders in the development and execution of training programs. It provides practical "how to" guidelines for leaders including the techniques and procedures for planning, executing, and assessing training.

Department of the Army (DA) Pamphlet 350-38 (Standards in Weapons Training-STRAC) provides DA requirements for weapons training programs. The requirements apply to all weapons and weapon systems throughout the Army. The following programs are included:

1. Standard weapons qualification
2. Suggested training strategies for individuals to achieve those standards.
3. Ammunition requirements to execute the suggested strategies.

This training pamphlet provides commanders with measurable standards for evaluating a portion of their overall training programs.

The 350 series of Army Regulations provide general guidelines to commanders on how to design and implement training concepts. AR 350-1 outlines Army wide standards for all training events. AR 350-41 outlines unit training guidance and assists commanders in designing a training strategy that determines the best to build and sustain proficiency in mission essential tasks (METL). AR 350-50 outlines the Combat Training Center (CTC) policy. The CTCs are designed as the pinnacle event in a unit's training program that creates realistic combat conditions in order to produce bold and innovative leaders through stressful tactical exercises.

The basic premise of Army training doctrine is two-fold. First, unit commanders are the primary trainers and they develop training programs based on METL analysis (derived from their most likely war time mission).[1] Second, in order to be successful in combat, units must train continually in order to develop and maintain combat ready soldiers, leaders, and units that can perform assigned tasks to specific standards.[2]

First Hand Accounts

Numerous primary sources are available on this subject. LTG (ret.)Harold G. Moore and Joseph L. Galloway in their book, *We Were Soldiers Once... and Young*, describe the training program that 1st Battalion 7th Cavalry used in preparation for combat operations in Southeast Asia during the period 1964 & 1965. Moore describes the intense combined arms training and synchronization conducted utilizing infantry, lift

helicopters, aerial rocket artillery, cannon artillery, and close air support that would later prove very effective in combat.

LTC Robert B. Rigg, writes in his 1955 article, "Realistic Combat Training and How to Conduct It," about the shock of combat and what training programs can be employed in peacetime to condition soldier's minds and embrace pressure and shock. Rigg argues for the need for physically and psychologically demanding training events that provide the emotional stress and shock so prevalent on the battlefield. He outlines these concepts as the following:

1. Train soldiers to kill without killing them
2. Emphasize small units (squad and platoon)
3. Tough Physical Training is the foundation for tough combat training
4. Emphasize realism

While emphasizing realism and the shock factor of combat Rigg also stressed imagination and initiative as factors for success in combat. This led him to develop the combat stakes course and tank reaction test course as training tool that prepared soldiers, leaders, and units for the chaotic conditions of combat. Rigg's work is important for two reasons. First, it links the concept of both realism and initiative as requirements for success in training for combat. Second, developing initiative is required to successfully implement our warfighting doctrine of maneuver warfare. Rigg's combat stakes and tank reaction test courses offer a tool to reach this objective.

LTG (ret.) Arthur S. Collins, Jr. argues in his book, *Common Sense Training, A Working Philosophy for Leaders*, that the quality of training is directly related to the

training environment of units involved. Collins discusses the training atmosphere created by the senior commander and how it can prevail over all the efforts of his subordinates to undermine it (Collins, p. xviii). Without the efforts of the senior commander, all other training is seriously undermined. Finally, Collins argues that training should be all encompassing and related to everything a unit does - or can have happen to it.

General (ret.) Wayne Downing in his article, "Training to Fight," discusses the importance of linking our "how to train" concepts with our "how to fight" doctrine. Maneuver warfare is the hallmark of our warfighting doctrine. Mission type orders that emphasize decentralized operations are required to make this concept work. Our training concepts must incorporate the spirit of mission type orders.

> We are in this training business to teach people to think through a situation and come up with a logical coherent plan. The plan must be uniquely suited to the situation at hand and it must work. We don't want to teach cookbook solutions that are blindly plugged into any situation encountered but that will most likely fail.[3]

Downing classifies training as both a science and an art, with the science providing the foundation for the artist. Battle drills are the science and foundation of our training base while tactics represents the art. Successful training programs must include both components. Downing argues for a training program that emphasizes decentralized, fluid, and creates the often-chaotic nature produced in combat. Downing's article is important because it represents the thoughts of a seasoned officer who has vast combat experiences with numerous types of infantry units (Mechanized, light, airborne, and special operations).

J.C. Fry in his book, *Assault Battle Drill*, concludes that combat mistakes of the past and the needs of future infantrymen can be addressed in perfecting a series of individual and collective battle drills. Fry argues that mastery of the assault battle drill best prepares units for combat. The ultimate goal is to develop soldiers and units that have the knowledge, instinct, and coordination to carry out the assault phase of an attack without the benefit of orders or signals.[4] Of interesting note Fry was a Regimental Commander (350th Infantry Regiment) in the 88th Infantry Division during the Italian Campaign of World War II. Fry's argument represents the battle drill school of thought for infantry training. This school of thought is opposed by the initiative oriented argument theory, which requires mastery of battle drills as a foundation for, not the definition of success in ground combat. Finally, Fry establishes a training plan that best prepares a unit for success in combat by executing the assault battle drill concept.

Charles P. Ferry in his article, "Mogadishu October 1993: A Company XO's Notes on Lessons Learned," discusses the preparation his unit underwent prior to deploying to Somalia in August 1993. Ferry points out four significant factors that prepared his unit for the intensity of ground combat against a determined and highly skilled enemy.

1. Tough realistic live fire exercises
2. Training on all available weapons systems
3. Taking acceptable risks to add realism to training
4. Physical conditioning

Ferry considers realism in training as the most important of the above factors. His soldiers and the unit as a whole where exposed to the chaos and confusion of the battlefield consistently during training. Concepts such as distinguishing between hearing and receiving fire, fire control and distribution measures, etc. where simple but critical concepts in preparing his unit for combat. The significance of Ferry's article is the success of his unit (TF 2-14 Infantry, 10th Mountain Division) during a brutal 18-hour ground combat engagement in Mogadishu, Somalia in October 1993.

William C. David in his article, "Preparing a Battalion for Combat" describes the impact of physical conditioning has on soldiers performance in combat. David discusses the physical training program of his battalion (2-14 Infantry, 10th Mountain Division) and how it prepared them for combat operations. David's article brings out two major points. First, physical training needs to be mission oriented (and battle focused towards the units METL) and integrated to support every training event the battalion undertakes. Second, a proper physical training program conditions both the physical and mental aspects of a soldier and the unit. David's article is significant because of the success of his unit in a demanding 18-hour engagement with a determined and skilled enemy on the streets of Mogadishu, Somalia in October 1993.

Patrick McGowan's article, "Operations in Somalia: Changing the Light Infantry Training Focus," discusses the experience of his unit (1-22 Infantry, 10th Mountain Division) in their preparation for and execution of operations in Somalia from April through August 1993. Somalia presented new challenges and missions for 1-22 Infantry (Humanitarian Assistance and Peace Keeping Operations). McGowan argues that the

change in mission required his unit to reevaluate their METL. Additionally, they used the same "battle focus" concept from FM 25-101 in order to develop a training program for their new mission. McGowan's article is of interest for two factors. First, it shows that a unit facing a new and completely different mission can use the concepts outlined in our current doctrine (FM 25-101) in order to prepare for it. Second, the new mission produced a great deal of unknown situations that would confront the battalion. They could not rely on cookbook solutions to solve them. A greater emphasis on initiative oriented training was developed in order to prepare the soldiers and the unit to react to the unexpected.

Second Hand Accounts

Numerous secondary sources are available on this subject. All will not be reviewed here for brevity. T.R. Feherenbach's book, *This Kind of War*, describes the training program of the United States Army Japan during occupation duty from 1945-50 and the results that training program had on the initial combat actions in the summer of 1950.

Mark Bowden's book, *Black Hawk Down: A Story of Modern War,* is a narrative that describes the battle between American forces and Somali warlords in Mogadishu, Somalia October 1993. Bowden's book not only covers details of the battle itself, but also looks into the little publicized world of the United States Army Special Operations forces. His narrative brings out the critical details of ground combat and how they effected units preparing for and executing the fight.

Geoffrey Perret in his book, *There's a War To Be Won: The United States Army in World War II*, describes the pre war training the Army went through in preparation for combat. Perret pays particular attention to the training style of General George C. Marshall during his days as Commandant of the Infantry School at Fort Benning, Georgia in the late 1920s. General Marshall subscribed to two tenets of training, hands on and unpredictable. First, a soldier could not learn effectively without trying it himself under field conditions. Second, war is chaos and unpredictable, that factor must be stressed in all peacetime training events.

Major John A. English in his book, *On Infantry* analyzes infantry small unit tactics and training from the period 1866 until 1980. Although English compares and contrasts several national (read that as foreign) infantries this thesis will utilize his chapters concerning United States Army and Marine Corps infantry battalions from World War II through the Korean War up until the present.

Trevor N. Dupuy in his book, *Understanding War*, argues that through the analysis of military history soldiers can reach an understanding of the fundamental laws that govern armed conflict. Dupuy applied his Quantified Judgment Model (QJM) to historical examples in an attempt to use quantitative research methods to validate the outcomes of battles. For the purpose of this research we can extrapolate from Dupuys QJM numbers what training methods were the most effective in preparing those units for combat operations.

Colonel Richard M., Swain of the Combat Studies Institute of the United States Army Command and General Staff College, in his book, *The Selected Papers of General*

William E. Depuy, puts together in one binding the thoughts and ideas of the most important figure in the recovery of the United States Army from its collapse in Vietnam. General Depuy's linked the concept of doctrine (how the Army fights) with training (how the Army prepares to fight). The link between warfighting doctrine and training doctrine is critical in the preparation of units for combat. We have to learn how to fight our doctrine in peacetime, and that is done through training.

Michael Doubler in his Combat Studies Institute study, "Busting the Bocage: American Combined Arms Operations in France, 6 June-31 July 1944," discusses the problems that hampered operations of the United States First Army during the weeks immediately following the D-Day landings. Doubler finds that pre-invasion training shortcomings combined with leadership challenges initially bogged down the American efforts in Normandy. Additionally, the report shows the process by which the Army identified and overcame the challenges of the Normandy campaign.

Jean Larteguy in his book, *The Centurions*, discuses the techniques and tactics of warriors primarily drawn from experiences in the French wars of Indo-China and Algiers. Larteguy mentions the training techniques of ancient warriors such as Gengis Khan and his "mangudai" training techniques. The mangudai is a process of depriving your leaders sleep, food, and shelter for extended periods of time in order to test their character and gain an insight on their future performance in combat conditions. The mangudai technique is incorporated today into most United States Army Special Operations training courses.

Sean Naylor in his article, "One Awesome Soldier: What You Can Learn From the Leader of the Big Red One" discusses the mangudai technique as it is being implemented by MG David Grange, Commanding General of the Army's First Infantry Division in Germany.

LTC (ret.) Butch Brennan in his unpublished article, "Thoughts On Training Leaders How To Fight," represents the initiative oriented theory of training. Brennan's arguments states that more than battle drill mastery is required in order to develop initiative in leaders that is required in order to respond to the chaotic nature of combat. Battle drills are only the foundation to successful training, whose mastery is required in order to accomplish mission type orders that are designed to take advantage of the chaotic nature of combat. Additionally, Brennan argues that there is a disconnect between our doctrinal how to fight (Field Manual 100-5, Operations) and how to train (Field Maunals 25-100 and 25-101) in the United States Army today. Our how to fight doctrine (100-5) requires mission type orders and initiative in order to succeed in combat while the how to train doctrine (25-100 and 25-101) do not account for the uncertainty typical of ground combat. Brennan goes on to make recommendations on how to address this incongruity with these two FMs.

Case Studies

This literature review has led me to numerous studies conducted by independent research organizations as the primary source of data. In a study conducted by the Historical Evaluation and Research Organization (HERO), *The 88th Infantry Division in World War II: factors responsible for excellence*, Gay M. Hammerman and Richard G.

Sheridan argue that numerous factors led to the success of the 88th Division in combat. The elements that were identified include quality of leadership and manpower, stability of personnel, length and quality of training, and method and quality of combat replacement operations. The authors examined data from multiple sources to include official records, secondary sources, and discussions with division veterans and other knowledgeable persons. This study is important because it analyzes the superior performance of one division (as compared to similar units) in the execution of combat operations during the Italian Campaign of World War II. Additionally, this study introduces the Quantified Judgment Model (QJM), a combat simulation model developed by HERO and used in a number of studies, to demonstrate the combat effectiveness of the 88th Division.

Bryan W. Hallmark and James C. Crowley of the RAND Corporation in their research study, *Company Performance At The National Training Center: Battle Planning and Execution*, illuminate the fact that over two thirds of the companies (armor and mechanized infantry) failed to effectively accomplish their missions during National Training Center (NTC) rotations. This study utilizes data collected from 12 months worth of training time (22 heavy battalions and or cavalry squadron rotations) training at the NTC. The data is analyzed using quantitative methods (a form of a linear regression equation) to determine the effectiveness of units conducting specific tasks. Hallmark and Crowley recommend improvements in leader training and home station collective training in order to improve performance at the NTC. Specifically they recommend three areas for improvement. First, introducing more realism and complexity into home station

training in addition to utilizing trained observer controllers and a free willed opposing forces (OPFOR). Second, getting Brigade and Battalion commanders more involved in company and platoon training in order to proper to eliminate distractions. Third, utilize simulations more often in order to make up for OPTEMPO shortfalls. Finally, the authors identified potential shortfalls in the Army's training doctrine (FM 25-100 and 25-101) which describe general training concepts but not detailed methods for conducting home station training.

Francis E. O'Mara in his study, *Variables Identified at Home Station Training That Are Associated With Successful NTC Performance*, establishes a direct correlation between quality of home station training and platoon performances at the NTC. O'Mara identified 6 variables that influenced a platoon's NTC performance:

1. Leader Effectiveness
2. Training program that focuses on collective vice individual skills development
3. Unit personnel stability
4. Small unit (squad and platoon) combat leadership
5. Collective training focus

An interesting point in O'Mara's analysis is the consistent pattern of a greater positive relationship of training quality and NTC performance as the training echelon gets higher. The higher the training echelon got (i.e., training that is focused on company, battalion, and brigade level operations) during home station training, the better the platoons performed. O'Mara's analysis showed the importance of multi-echelon training in preparation for combat.

M.S. Salter and T.J. Thompson of the Army Research Institute (ARI) in their study, *Rifle Company Performance at the Joint Readiness Training Center: Analysis of Take Home Packages*, analysis the performance of 45 rifle companies from 15 battalions at the Joint Readiness Training Center (JRTC). ARI's purpose was to extrapolate from unit performances at JRTC the identification of tasks to be trained on at home station to increase unit performance and thus combat effectiveness. This study identified a number of factors associated with a higher level of performance at the JRTC. These factors are:

1. Soldier Quality
2. Leadership Experience and Continuity
3. Amount of Squad and Platoon Training (particularly battle drills) Time
4. Combat Realism (to include limited visibility operations, a free-thinking opposing force, and casualty evacuation)

The study stresses training centered around small units (squad and platoon) battle drills, and incorporating as much combat realism as possible.

J.L. Dyer, G.W. Fober, R.J. Pleban, M.S. Salter, and P.J. Valentine of Army Research Institute (ARI) analysis home station training and its effects on light infantry units performance at Combat Training Centers (CTC) in their study, *Light Infantry Performance at the Combat Training Centers: Home Station Detriments*. This is a multi-year research program designed to increase unit's combat capability as measured by performance at a combat training center. Both heavy and light maneuver battalions are analyzed. The report correlates combat readiness (as measured by CTC performance) and recommends improvements in training and or training management procedures in

order to increase readiness. The recommended changes to current training management policies of most Divisions and or Installations in order to add more stability and predictability back into the training schedules. Finally a recommended frequency of critical events was developed in order to reach the optimum home station-training program.

Robert F. Holz, Jack H. Hiller, and Howard McFann edited a collection of articles entitled, *Detriments to Effective Unit Performance: Relationships Between Unit Training Preparation for Combat and Unit Performance*," that analyze the performance of armored and mechanized brigades at the National Training Center (NTC). The study concludes the following four factors influenced a brigade's performance the greatest:

1. Operations Tempo (OPTEMPO). More is better. Units that drove more miles on their vehicles during home station training performed better at NTC. The difference between the best and worst performing brigades was 758 versus 358 miles during home station training.

2. Sustainment. Repetitive work on critical battle focused tasks. Always allow for retraining time.

3. Battle Focus. Figure out what is important and focus your efforts there. Best brigade 11 training days focused at company level training concentrating on 12 tasks. Worst brigade, 4 training days of company level training focused on 47 tasks.

4. A non-cooperative opposing force that is out to win and not just becomes a training aid.

The significance of these studies is the depth of data collected (two years of observations) at the premier training center for armored and mechanized units in the Army. The depth of the observations adds great validity to the data collected.

Previous Studies

Robert R. Palmer, Bell I. Wiley, and William R. Keast of the Historical Section Army Ground Forces, Office of the Chief of Military History, Department of the Army, analysis training programs in their book , *The United States Army in World War II, The Army Ground Forces, Procurement and Training of Ground Combat Troops*. The authors analyze all aspects of training policies, procedures, and programs for ground combat forces to include individual, leader, and unit. The study illuminates the Army Ground Forces (AGF) training strategy of focusing on a large force of combined arms in extended field conditions, rather than a school or replacement training concept. The strength of this study is the fact that it was made during the war and exploits the advantage of access to records and personnel while critical decisions were being made. The problems they faced and the decisions they made were foremost in their thoughts and interests. Data for this study was obtained from official records and interviews with Army Ground Forces (AGF) Headquarters and supplemented by observations and interviews in the field.

C.K. Jaques in his study, "United States Army Infantry Training Program Effectiveness During the Korean War," analyzes the effectiveness of Army training doctrine before and during the Korean War. Jaques identifies numerous shortfalls that led to the poor performance by Army units in the first 6 months of the war. These

include equipment and manning shortfalls in units, poor leadership (to include selection, retention, and training) and infantry training execution necessary for combat effective units.

Robert M. Hensler and Howard W. Crawford in their U.S. Army War College study project, "Joint Readiness Training Center (JRTC) Training Observations: Implications for Senior Army Leader Training," analyze the initial lessons learned from the first two years of the joint Readiness Training Center (JRTC). Hensler and Crawford extrapolate lessons learned from the data collected that culminates in a series of training recommendations in order to prepare for success at the JRTC (and read combat operations for light infantry units). The significance of this study is two- fold. One, the authors bring a wealth of experience to the project. Two, they present a logical argument that results in a series of recommendations (answering the so what question of the data) based on their analysis of the data collected.

Robert M. Cronin in his United States Army War College (USAWC) study, "JRTC to Just Cause" outlines the training program his Light Infantry battalion utilized in preparation for a scheduled JRTC training rotation and which served them well during combat operations in Panama. Cronin's training program emphasizes three major points: physical fitness, training sustainment, and integration of realism (limited visibility, opposing forces, Multiple Integrated Laser Engagement System MILES, combat service support, and casualty evacuation). Additionally, he emphasizes the use of ARTEP Mission Training Plans (MTPs) in order to focus your efforts. Cronin's study is

significant because it represents the experiences of a battalion in preparation for a combat training center rotation and actual combat operations.

The literature review offers a depth and breadth of knowledge on the subject of training infantry units for combat. Several contrasting theories are illuminated in this review. However, among all the literature certain concepts begin to appear with regularity. These concepts form the critical components of ground combat operations and will be used as the principles of the optimal training program.

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[1] This process is known as METL analysis. METL represents the critical task list that a unit has determined are required for it to succeed in its wartime mission. Realizing those constrained resources prevents units from accomplishing everything, battle focused training narrows a commander down to the most important tasks required to succeed in combat.

[2] Department of the Army, Field Manual 25-101, *Training The Force.* (Washington: Government Printing Office, 30 September 1990), Foreword.

[3] Downing, Wayne A., "Training to Fight," *Military Review,* (May 1986), 19.

[4] Fry, James C., *Assault Battle Drill* (Harrisburg, Pennsylvania: The Military Service Publishing Company, 1955), 5.

CHAPTER 3

ANALYSIS

The analysis of the research data has borne eight critical components of ground combat operations. These eight critical components are dominant in all the literature and my personal observations. They are as follows:

1. Physical Fitness
2. Weapons Proficiency
3. Unit Cohesion
4. Reaction to Stress
5. Mastery of Collective Tasks & Battle Drills
6. Integration of Combined Arms
7. Leadership
8. Developing Initiative

Physical Fitness

Physical fitness is considered one of the foundations on which the other eight components of ground combat are built. There is no argument within the Army about the important link between physical fitness and combat readiness.[1] In preparing a unit for ground combat operations, a physical training program serves to condition the body and the mind. A physical training program develops soldiers to not only overcome the effects of weather, terrain, and a stubborn enemy, but also how to overcome fatigue and fear in the execution of combat operations. The program must not only achieve physical and mental conditioning but must be linked to tasks likely to be performed in combat.

This link between physical fitness and mental toughness is best illuminated by LTC William C. David in his article for *Infantry Magazine*, "Preparing a Battalion for Combat: Physical Fitness and Mental Toughness," in which he describes physical fitness and mental toughness as inseparable. David argues that infantry soldiers must not only have the strength and stamina to move over great distances, overcome difficult terrain and environmental elements, but still have a reserve of energy to fight the close fight against a well rested enemy. Physical toughness will only take you so far soldiers must have the mental toughness to reach down inside themselves for an extra burst of speed and energy when their bodies are telling them no.[2] In order to address both the physical and mental aspects of ground combat, LTC David developed a physical training program that regularly stretched his unit by scheduling physical training events that forced everyone through the physical and mental "wall" that is familiar to any marathon runner.[3] The payoff for LTC David was the successful actions of his battalion (Task Force 2-14 Infantry) in combat operations in Mogadishu, Somalia from August through December 1993.[4] LTC David attributes the physical and mental conditioning directly with his unit's success in combat.

The importance of physical and mental conditioning is also highlighted by LTC Robert F. Cronin, commander of 5th Battalion, 21st Infantry Regiment, 7th Infantry Division during Operation *Just Cause* in 1989. LTC Cronin describes the Cold Steel Physical Training program designed by the Brigade Commander as extremely strenuous and mentally challenging.[5] This physical training program helped establish a no quit

mind set for the soldiers.[6] LTC Cronin credits the Cold Steel PT program as a critical component of his units success in combat during Operation Just Cause.

The importance of physical fitness in ground combat has not recently come to light. The operations and training reports of the 88th Infantry Division, a unit which fought in the Italian Campaign of World War II, from 1944 to 1945 consistently mention and stress the importance of physical training in preparation for ground combat operations.[7] The leaders of the 88th Division also recognized the need for physical training both in combat and peacetime preparations by ensuring units were rotated out of the line for a period of time in order to sustain training on critical combat skills. Physical fitness is consistently mentioned in the training memorandum issued that provided guidance and specific instructions for these training periods.

Weapons Proficiency

Weapons proficiency is the next critical component of ground combat. Simply put, a soldier must be comfortable with firing his weapons systems under various conditions in order to be effective. The basic mission of the infantry has remained unchanged throughout the years: Close with and destroy the enemy by means of fire and maneuver, seize terrain, and repel the enemy assaults with fire. In order to accomplish this basic mission, a soldier must be able to deliver well-aimed and accurate small arms fires.

This point is best demonstrated by J. C. Fry in his book, *Assault Battle Drill,* in which he describes the ability to deliver accurate and murderous fire with the individual soldier's primary weapon as the most basic fundamental of soldier training.[8] MG Fry

argues that infantry combat has changed little throughout the years. Improved weapons technologies and transportation procedures have changed the pace and tempo of the battlefield, however, the infantry is still required to close with and destroy the enemy by means of close combat.

MG Fry also makes the argument that the basic fundamentals are the same for all ground combat units.[9]

> They vary only in application according to the distance from the enemy, the weapons involved, methods of communications, and transportation. For example a tank commander uses a cannon and an infantryman a rifle, but the basic requirement is the same - to shoot fast and accurately, to kill swiftly and efficiently with the weapons available.[10]

MG Fry uses numerous historical vignettes to illustrate his points. Concerning the importance accurate small arms fire he uses a World War I example in which a rifle company in the attack was held up by one well placed enemy machine gun. Captain R. O. Miller, the company commander explains the value of aimed fire:

> I crawled forward to a slightly elevated piece of terrain where a soldier explained that he could occasionally see the German machine gunner's helmet through the weeds. I took a rifle from the soldier closest to me and crawled to a firing position. I estimated the range and wind just as I would have to get off a well-aimed shot at Camp Perry. Suddenly, I saw the German machine gunner's helmet as he fired a burst. I lined my sights up on the spot where his head had been and waited. A few seconds later, the German started to fire again and his helmet came into view. I squeezed the trigger with care. My Springfield barked and the German machine gunner's helmet jumped off his head. The machine gun stopped firing.[11]

The significance of this vignette is not only the importance of accurate well-aimed fire in ground combat operations, but also the importance of training a soldier to deliver such fire. Captain Miller talks about his training at Camp Perry prior to deployment overseas and how he fell back on that training in a combat situation.

Understanding the importance of accurate well-aimed fire and how to train soldiers to achieve it can't be overestimated.

The importance of weapons proficiency is again demonstrated in the Army Research Institute (ARI) study, *Light Infantry Performance at the Combat Training Centers: Home Station Determinants.* ARI argues that weapons proficiency is a critical component to a unit's success or failure at both the Joint Readiness Training Center (JRTC) and the National Training Center (NTC). The study derived the relative importance of weapons training in the unit's overall training approach. A very strong agreement was derived between weapons training, the frequency of such training and the results achieved during tactical missions. The conclusion is that units proficient with their organic weapon systems produced better overall results on the battlefield during simulated combat exercises.[12]

John A. English also demonstrates the effectiveness of weapons proficiency in ground combat in his book, *On Infantry.* English discusses the importance of accurate small arms fire as the key to success of infantry formations throughout history.[13] Of importance to this study are English's focuses on American infantry development during and after World War II. The development of the American infantry formations during this period was influenced by the development of the semi-automatic rifle, the M1 Garand. The semi-automatic rifle reduced the advancing infantry's dependence on supporting or covering fires by providing the infantryman themselves with a weapon system capable of producing the same effects.[14]

Although supporting weapons (at platoon, company, and battalion) still had their role on the battlefield and played a large part in infantry tactics, a paradigm shift had occurred. The importance of well aimed, accurate fires by the infantryman became the basis for organization, equipment, doctrine, and tactics of infantry formations ever since. The reorganization of United States Army tactical units has consistently applied this principle as the baseline in regards to its infantry formations since World War II.[15]

Cohesion

Cohesion is linked to a unit's performance in combat in almost every piece of literature available on the topic. This point is best illustrated by Francis O'Mara of the Army Research Institute (ARI) in his study *Relationship of Unit Training and Factors to Combat Performance.* O'Mara argues there is an observed correlation between unit stability and cohesion and unit performance in simulated combat exercises at the National Training Center (NTC). The O'Mara study used a previously developed tool, the Platoon Cohesion Index (PCI) to measure unit cohesive effectiveness.[16]

The results of the O'Mara study support an idea that is widely held among Army leaders - that unit cohesion is an important condition for developing unit capability.[17] The findings of this study are consistent with an earlier research project, *Army Combat Unit Effectiveness* by S. L. Funk, in which it is suggested that personnel turbulence constrains progressive training and the development of collective skills, thereby diminishing unit capability. The O'Mara study points out that this is especially true for stability of unit personnel, in particular small unit leaders, on a units tactical performance at the National Training Center (NTC).

W.D. Henderson examines the relationship between unit cohesion and stability in his study, *Cohesion: The Human Element in Combat.* Henderson argues that unit stability is a precondition for cohesion among units. Cohesion in turn is held to be an important contributor to unit performance, particularly under stress.[18]

Henderson's theory is supported by LTG (retired) Harold G. Moore in, *We Were Soldiers Once... and Young,* in which he describes the effects of unit stability and cohesion on his battalions preparation for and performance in combat in Vietnam. LTG Moore's battalion (1st Battalion, 7th Cavalry Regiment, 1st Air Cavalry Division) departed for Vietnam in August 1965 over 100 personnel (both soldiers and leaders) short of authorizations.[19] He describes the effects of this decision,

> We were sick at heart. We were being shipped off to war sadly under strength, and crippled by the loss of almost 100 troopers in my battalion alone. The very men who would be the most useful in combat - those who had trained longest in the new techniques of helicopter warfare - were by this order taken away from us. It made no sense then it makes no sense now[20].

The stability of LTG (ret.) Moore's battalion was greatly effected by this personnel turbulence. As a result so was the performance of his unit as the turbulence caused reduced cohesion and reduced capabilities. Moore goes on to describe the effects of personnel turbulence throughout his experiences in Vietnam as both a Battalion and Brigade commander. Particularly two policies, 12-month tours of duty for everyone and 6 month battalion and brigade command tours. He describes the effects of the 12-month tour of duty policy:

> Those who had survived and learned how to fight in this difficult environment began going home in the summer of 1966; with them went all their experience and expertise. Replacing them would be an army of new draftees, which in due

> course would be replaced by newer draftees. The level of training drifted even lower as the demand for bodies grew.[21]

And the 6 month battalion and brigade command policy tour:

> Even more devastating to the morale and effectiveness of every American unit in combat was the six month limit on battalion and brigade command. It was ticket punching: A career officer had to have troop command time for promotion. The six month rule meant that twice as many officers got that important punch. It also meant that just about the time when a commander learned the terrain and the troops and the tricks and got good at the job - if he was going to get good - he was gone. The soldiers paid the price.[22]

LTG Moore's experiences in Vietnam show the validity of the relationship between unit stability as the linchpin of cohesion, that is a crucial factor in capabilities and performance.

Clay Blair in his book, *The Forgotten War: America in Korea 1950-1953* again demonstrates the importance of unit cohesion. Blair points out one of the most significant factors that impeded training in the Eighth Army prior to the commitment of American combat troops to Korea was the excessively high turnover rate: 43 percent annually.[23] Battalions were not only under strength but also like a revolving door argued Blair. This personnel turbulence prevented units from achieving cohesion and combat capabilities through training.

Reaction to Stress

Stress has been long recognized as a component of any combat operation. Reaction to stress has often been the difference between success and failure on the battlefield. This point is best demonstrated by LTC Robert B. Rigg in his article, "Realistic Combat Training and How to Conduct It". LTC Rigg argues that you must prepare men for the shock of war by developing an imaginative and realistic approach to

training that can help mitigate the effects of stress. Based on his World War II and Korean War experiences, LTC Rigg developed two programs, the Combat Stakes and Tank Reaction Test Courses, at FT Knox Kentucky in 1955 designed to train soldiers and leaders to react to stress on the battlefield. Rigg's programs emphasized realism to include traumatic casualties caused by gunshot wounds and high explosives, the loss of key leaders, and the unexpected nature of ground combat as some of the variables that induce stress on the battlefield. Stress could never be fully overcome, but its effects could be mitigated through training.[24]

Reaction to stress is also recognized in the leadership training techniques of Major General (MG) David Grange, currently Commanding General of the 1st Infantry Division. MG Grange uses an exercise called the "mangudai" to stress the leadership of his Division.[25] The mangudai exercise involves taking the leaders into the wilderness for several days, deprive them of food and sleep, and then present them with physical and mental challenges to wear down their bodies and their brains.[26]

The purpose of the mangudai is to place leaders and soldiers under stressful conditions in peacetime in order to evaluate their potential reactions under combat stress. "It has to do with inducing stress, and then watching how these leaders adopted to those conditions,"[27] according to MG Grange who has used this exercise in various units ranging from an infantry battalion through division.

General (ret.) Wayne Downing also argues that adapting to stress is a critical component of training for ground combat operations. General Downing highlights the nature of our warfighting doctrine (maneuver warfare) which is characterized by chaos

and disorder on the battlefield.[28] We are not going to create a system to manage this chaos and disorder, Downing argues, so we have to learn to live with it and attempt to capitalize on the opportunities it presents us.[29]

Chaos and disorder naturally create stress. This is in addition to the stress produced by close combat operations. Training in this environment is key to establishing conditions for success in fighting in this environment. The most important facet of this is training subordinates and *ourselves* (emphasis added) to accept chaos and disorder as a given on the battlefield and deal with it.

Mastery of Collective Tasks & Battle Drills

Mastery of collective tasks is the bread and butter of an infantry battalion's training program. It is integration and synchronization of a unit's collective efforts that allow it to generate combat power and defeat the enemy. Major General (ret.) James C Fry in, *Assault Battle Drill* best illustrates this point. Fry argues that units, not individuals win battles. Heroism helps and valor is necessary, each of these however, must put muscle on the skeleton of teamwork.[30] Through instinct, repeated drills, and practice, men can be taught exactly what is expected of them under combat conditions.[31] Fry argues that combat experience is not the only way to prepare troops for combat. Tough realistic training can prepare units prior to entering combat and thus increasing their chance for victory.[32] For Fry the key is the assault battle drill:

> The assault battle drill represents a contribution to the solution of a consistent military problem - the adaptation to first combat and how to make the most of in the shortest possible time of what has been learned by others.[33]

Additionally, Fry stressed that practice is essential to mastery of the assault battle drill:

> The key to smooth platoon battle drill is repeated practice. Only by repetitive instruction is it possible to develop that platoon coordination necessary to prepare troops for combat. Many phases of operations depend upon close understanding by all members of a platoon of how their leader will probably react to a given situation. The platoon leader must know his men intimately and they in turn must have an opportunity to understand their leader. They want strong leadership and will trust their officers instinctively. However, there are no short cuts. Only through hard or even harsh repetitive battle exercises will close appreciation of individual behavior and teamwork be absorbed.[34]

The importance of collective skills mastery is again demonstrated by the United States Army's Research Institute (ARI) for the Behavioral and Social Sciences in its study, *Relationships to Unit Training and Personnel to Combat Performance.* The ARI study indicates that units, which emphasized the development of collective skills in their home station training, tended to perform better at the National Training Center (NTC). Conversely, a negative relationship was observed between a unit emphasis on individual training and subsequent National Training Center (NTC) performance.[35]

Mastery of collective tasks is supported in numerous other arguments found throughout the literature review. Specifically a study conducted by the Rand Corporation, *Company Performance at the National Training Center: Battle planning and Execution*. The Rand study concluded that company planning and execution of direct fire controls is generally inadequate. The results point to the need to improve pre-National Training Center (NTC) training. Specifically, home station leader and collective training as the areas that most need improvement.[36]

Charles Ferry in his article, "Mogadishu October 1993: A Company XO's Notes on Lessons Learned" discusses the value of tough, realistic training as key ingredient of his unit's preparation for combat. Ferry argues that the single best preparation for combat is tough, realistic live fire exercises (LFXs), starting at individual and working up to company level where indirect fire and close air support (CAS) assets are integrated.[37]

> The effectiveness of live fire training, in which commander's take acceptable risks in order to enhance realism, gave the soldiers of Ferry's battalion the best taste of what combat will sound and feel like. The extensive live fire training conducted by our unit saved lives and enabled the company to perform well under fire.[38]

Finally, the Army Research Institute (ARI) in their study, *Light Infantry Performance at the Combat Training Centers* focus on the factors associated with high performance at the Joint Readiness Training Center (JRTC). ARI identified a number of factors that influenced a unit's JRTC performance. Of particular notice were a units performance of collective training events, especially battle drills that stressed combat realism.[39] The ARI findings support the arguments put forth by Ferry, O'Mara, and Fry.

Integration of Combined Arms

The integration of combined arms into ground combat operations increases the combat power of an infantry unit. This concept is widely accepted as a military axiom. Trevor Dupuy in his book, *Understanding War* describes the thirteen timeless verities of combat.[40] Verity number nine states that superior combat power always wins: "God is always on the side with the heaviest battalions and most artillery[41]". This demonstrates that creation of combat power is important and the combination of different arms (in this case infantry and artillery) multiplies these effects.

The importance of this concept is well founded in the Army's training doctrinal manuals. FM 25-101 points out: The greatest combat power results when leaders synchronize combat, combat support, and combat service support systems to compliment and reinforce one another.[42] Robert F. Holz and Howard H. McFann in their study best illustrate this point, *Determinants of Unit Performance*. Holz and McFann found that units rated most successful at the National Training Center (NTC) were the ones who habitually trained as a combined arms team.[43] By comparison units rated as least successful were found to have not formed combined arms teams prior to the training rotation.

Wolf D. Kutter in his article, "10th Mountain Division at JRTC," also demonstrates the importance of combined arms in ground combat operations. Kutter argues that combined arms synchronization and integration are critical to increasing the combat power of an infantry force. Additionally, he points out two institutional roadblocks that complicate this process, schoolhouse and modular force structure design tyranny.[44] Only through habitual training relationships are units going to be successful building a team that can withstand not only the rigors of JRTC, but also combat.[45]

Michael Doubler in, "Busting the Bocage: American Combined Arms Operations in France, 6 June-31 July 1994," discusses the importance of combined arms training in preparation for combat. Doubler points out the shortcomings in pre-invasion training and preparation of the United States First Army that resulted in uncoordinated efforts whenever American infantry, armor, and artillery tried to combine forces during attacks.[46] These uncoordinated efforts led to severe problems for American units

attacking veteran German defenders on terrain specially suited for defense.[47] It was not until a unified combined arms team was formed (after 6 weeks of the Normandy Campaign) that First Army was able to successfully defeat the German defenders.

Leadership

Confident and competent leadership is the dominant factor in the success of ground combat operations. Unit effectiveness in combat operations are closely related to the effectiveness of their leaders. This fact is recognized throughout the Army. And in no other profession is the price for leadership failure as severe as in the Army.

Clay Blair in, *The Forgotten War: America in Korea 1950-1953* describes the "ghastly" ordeal the first year of the Korean War represented for the United States. For various reasons the United States Army was not prepared mentally, physically, or otherwise for war.[48] Blair describes the state of leadership in the Army at the time (June 1950): On the whole, its leadership at the army, corps, division, regiment, and battalion levels was over aged, inexperienced, often incompetent, and not physically capable of coping with the rigorous climate in Korea.[49] The quality of this leadership directly led to the disastrous consequences the Army faced during the first six months of the war.

The importance of confident, competent leadership in ground combat operations is illustrated in almost ever source document concerning the subject. Two case studies in particular conducted by the Army Research Institute for the Behavioral and Social Sciences illustrate this point. First the ARI study, *Light Infantry at the Combat Training Centers: Home Station Determinants* identified leadership confidence,

experience and continuity as one of the factors associated with a higher Joint Readiness Training Center (JRTC) performance.[50]

The ARI study identified six areas that influence a units performance: resources, training management, personnel stability, cohesion, and leadership. The findings suggest that, all other things being relatively equal, leadership is the one variable that has the greatest influence on a unit's performance[51]. The more experienced and confident the units leaders are, the better probability they could overcome obstacles to success in the other five areas.

The O'Mara ARI study, *Relationships of Unit Training and Personnel Factors to Combat Performance* identifies the relationship between positive unit performance and the effectiveness of their leaders.[52] O'Mara used the leadership competencies established by the Center for Army Leadership (CAL) as essential elements of Army Leadership[53]. O'Mara's findings support those of the earlier ARI study, *Light Infantry at the Combat Training Centers: Home Station Determinants* that leadership effectiveness is directly related to unit performance.

Developing Initiative

Developing initiative is the final critical component of ground combat, and the most misunderstood in the culture of today's Army. Ground combat is associated with a series of violent, chaotic events that often creates uncertainty and confusion on the battlefield. Trying to control and master this chaos from a centralized position usually results in failure. Units that are successful learn how to deal with these conditions and attempt to take advantage of the opportunities they present. Initiative calls for leaders

who can survive in chaotic conditions to undertake operations to fulfill the commander's intent without the benefit of written or verbal orders.

General (retired) Wayne Downing best illustrates this concept in his article, "Training to Fight." Downing argues that there is usually a disconnect between how we train and how we fight.[54] As described earlier in this maneuver warfare requires decentralized execution in order to be successful. Downing describes his attempts to develop training exercises that require such thinking and produce leaders with initiative.

> We are in this training business to teach people the ability to think through a situation and come up with a logical, coherent plan. The plan must be uniquely suited to the situation at hand, and it must work. We do not want to teach cookbook solutions that are blindly "plugged" into any situation encountered but that will most likely fail.[55]

Downing recommends developing training events that condition units to expect the unexpected.[56] These types of scenarios teach our soldiers to adapt to any situation they might find themselves in. He goes on to describe the structure of such training events: "Commanders should consider structuring training events where a subordinate unit must violate his specific instructions, to include control measures, in order to accomplish his mission and support the commander's intent."[57]

Downing also discusses the science versus art aspect of warfare. As professionals we must be skilled in both crafts. The science part of the equation is skills required as the foundation in the practice of warfare[58]. In order to practice the art you first must master the science. The art of war is applying the tools (the science) to a given situation

and producing a unique plan that will accomplish the mission. The key is balancing the limited training resources between the two.

LTC (retired) Butch Brennan in his article, "Thoughts on Training Leaders How to Fight" argues that more than battle drill training is needed in order to produce the initiative required that can respond and take advantage of the chaotic nature of the battlefield.[59] Brennan identifies three rules to tactics in which leaders must adhere to in order to win on the battlefield:

1. Accomplish your mission
2. You cannot violate the laws of physics
3. You must understand the human dimension of war

Brennan's argues that understanding mission orders is critical to using initiative to accomplish a mission. A mission order tells a subordinate his purpose (why) and how that purpose is related to forces around him[60]. The how is left to the subordinate to decide. The purpose always takes precedent over all else.[61] Brennan's arguments are similar to Downing's.

Additionally Brennan discusses the disconnect between the Army's "how to train" and "how to fight" doctrines. Similar to the discussion brought up by Downing, Brennan argues that the Army's training doctrine does not account for the uncertainty on the battlefield, nor does it stress initiative.[62] Rather it stresses completing a specific task, under specific condition, to specific standards. Success equals reaching the standard. The problem is that ground combat is rarely so clean. The conditions may change rapidly, as may the task, while the purpose remains the same. Our training doctrine does not address

such ambiguities. Our warfighting doctrine, on the other hand, talks extensively about the uncertain nature of combat and the steps required in order to take advantage of those conditions. Failing to train for such conditions can lead to disastrous results on the battlefield.

Brennan argues there are three levels of training, institutional, functional, and combat. Institutional training focuses on transforming a civilian into a soldier (commonly referred to as initial entry training-IET) and professional development of officers and non-commissioned officers. Functional training focuses on the science of fighting (similar to Downing's arguments) technical proficiency, mechanical skills and techniques, crew and battle drills. Combat training emphasizes the preparation for the rigors of the battlefield.[63] Combat training is the most important of the three.

Finally, Brennan points out the methodology of training described in FM 25-101 restricts combat training in most units. FM 25-101 calls for a crawl, walk, run methodology in which everyone in the unit must be brought up to standard before moving on to the next level. This usually results in most units never making it past functional training. This leads to poor development of initiative among leaders and fails to prepare units for the rigors of combat.

The analysis of the research data has borne eight critical components of ground combat operations. These eight critical components are dominant in all of the literature and my personal observations. Adherence to these eight critical components will not result in automatic success on the battlefield. Rather they are the ingredients of a recipe. Just like baking an apple pie, the right combination, mix, and portions are critical to

success. Too much of one ingredient and too little of another result in a pie you would not want to eat. Incorporating these components into a training program that results in the perfect apple pie is the next step in the process.

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[1] William C. David, "Preparing and Infantry Battalion for Combat: Physical Fitness and Mental Toughness," *Infantry Magazine*, May-June 1995, 26.

[2] David, 26.

[3] The 25 mile foot march is an example of a training event used to address the mental toughness piece of the physical fitness equation. A typical soldier could go the first 20 miles on his fitness and stamina alone. The last five miles required guts and determination to finish. It is this ability to continue forward long after your strength and adrenaline are gone that may prove the difference between life and death on the battlefield.

[4] Task Force 2-14 Infantry, 10th Mountain Division, conducted combat operations in and around Mogadishu, Somalia from August through December 1993 as the Quick Reaction Force (QRF) for United Nations Operations Somalia (UNOSOM II). Task Force 2-14 was involved in numerous skirmishes and small scale (company sized and below)engagements with elements of the Somalia National Army (SNA) loyal to "Warlord" Mohammed Farah Aideed. The most significant of these operations was the 17 hour relief operation on 3-4 October 1993 to extract elements of Task Force Ranger following the downing of two UH-60 aircraft during an earlier raid operation. The physical and mental conditioning of the battalion were put to the ultimate test during those 17 hours of close combat. The results speak for themselves as Task Force 2-14 successfully accomplished its mission with minimum casualties.

[5] Colonel Lynwood Burnie commanded the 2nd Brigade, 7th Infantry Division during this period. He was responsible for designing and implementing the Cold Steel PT program. The program was designed to push soldiers and units to physical exhaustion, challenging them to learn their physical and metal thresholds and how to operate under these conditions. The program proved very effective in both the 7th Infantry Division and in the Berlin Brigade, where COL Burnie was a battalion commander. I participated in the Cold Steel PT program while assigned to the 5th Battalion, 502nd Infantry Regiment, Berlin Brigade in 1986. Although COL Burnie was two years removed as battalion commander, his Cold Steel PT program lived on.

[6] Cronin, Robert M., "JRTC to Just Cause: A Case Study of Light Infantry Training" (United States Army War College, 10 May 1991), 8.

[7] 88th Infantry Division, Training Memorandum Number 18, 25 July 1944. Additionally, the 88th Infantry Division is recognized as one of the top performing divisions in World War II. The history and reasons for success of the 88th Division are summed up well in the Historical Evaluation and Research Organization (HERO) study, *The 88th Infantry Division in World War II: Factors Responsible for its Excellence,* by Gay Hammerman and Richard G, Sheridan. The significance of the 88th Division is the fact that it was a draftee division with no history before activation in 1942. How it became a division (its training program) that out performed all Allied and matched some of the best German Divisions in the Italian Campaign of World War II has relevance to this study of optimal training strategies. Simply put, find out what the 88th Division did to prepare for combat operations, and incorporate their lessons learned into present training programs.

[8] Fry. James C., *Assault Battle Drill* (Harrisburg, Pennsylvania: The Military Service Publishing Company, 1955), 13.

[9] This point is also established in the scope of this thesis by including both mechanized and light infantry forces. The author concurs with MG Fry's analysis that the fundamentals of ground combat are exactly the same for both types of forces. The principle of accurate and well aimed fire applies to the M2 Bradley Infantry Fighting Vehicle (IFV) gunner with the 25mm Bushmaster cannon and to the individual rifleman armed with the M16A2 rifle.

[10] Fry, 13.

[11] Fry, 16.

[12] Dyer, Jean L., Fober, Gene W., Pleban, Robert J., Salter, Margaret, S., Valentine, Patrick J., and Thompson, Thomas J., *Light Infantry Performance at the Combat Training Centers: Home Station Determinants* (Fort Benning, Georgia: United States Army Research Institute, Fort Benning Field Unit, 1992), 22.

[13] John A. English, *On Infantry* (New York: Praeger, 1981), 2.

[14] English, 129.

[15] The United States Army Training and Doctrine Command (TRADOC) uses a principle of Doctrine, Organization, Training, and Material (DOTM) As its framework for sustaining and or developing force structures. All of this is based on the most likely perceived threat the nation faces, and the role of Army forces in responding to that threat. The argument being made here by the author is that the principle of small arms proficiency by individual infantrymen is the baseline for all infantry force structure issues.

[16] Siebold, G.L. & Kelly, D.R. *The Development of the Platoon Cohesion Index (PCI)* (Alexandria, Virginia: U.S. Army Research Institute for Behavioral and Social Science, 1988). This twenty-item instrument is broken down into sub scales measuring six elements of cohesion or forms of soldier bonding. These are defined in terms whether the bonding is affective (based on social or psychological environment and includes feelings, emotions, and values) or instrumental (based in the objective, task centered environment and includes skills, competencies, and mission focus). Each of these two types of bonding is further broken down according to whether it refers to bonding among soldiers (horizontal bonding), bonding of the soldier to his leader (vertical bonding), or bonding the soldier to the organization of which he is a member (organizational bonding).

[17] O'Mara, Francis, *Relationship of Unit Training and Personnel Factors to Combat Performance* (Alexandria, Virginia: U. S. Army Research Institute for the Behavioral and Social Sciences, 1989)

[18] Henderson, W. D. *Cohesion: The Human Element to Combat* (Washington: National Defense University Press, 1985)

[19] The United States Army was a draftee force in 1965. Draftees made up the bulk of the junior (E-1 through E-4) enlisted force. President Lyndon B. Johnson refused to declare a state of national emergency in support of the 1st Cavalry's deployment to Vietnam. Thus all soldiers and leaders who were within 60 days of their service (both draft and reserve commissioning) commitments ending did not deploy with their units.

[20] Moore, Harold G, and Galloway, Joseph, L., *We Were Soldiers Once... and Young* (New York: Random House, 1992), 25.

[21] Moore, 343.

[22] Moore, 344.

[23] Blair, Clay. *The Forgotten War: America in Korea 1950-1953* (New York: Anchor Books, Doubleday, 1987), 49.

[24] Rigg, Robert B., *Realistic Combat Training and How to Conduct It* (Harrisburg, Pennsylvania: The Military Service Publishing Company, 1955), 33.

[25] Naylor, Sean "One Awesome Soldier: What You Can Learn From the Leader of the Big Red One," *Army Times Magezine*, 8 February 1999, 13. The Mangudai is an event named for the elite forces of 13th Century Mongol Warlord Genghis Khan.

[26] Naylor, 13.

[27]Naylor, 14.

[28] Downing, Wayne A. "Training to Fight," *Military Review*, May 1986, 25. Maneuver warfare is a style of warfare that attempts to pull an enemy apart by presenting him with unexpected and dangerous situations more rapidly than he can deal with them. It seeks an enemy's weak points and attacks them with friendly strengths. This form of combat requires decentralized, independent action by leaders at every echelon. By nature of its fast flowing ever-changing tempo, this type of warfare induces stress among units and commanders.

[29] Some argue that the digitalization concept involved in the Army's Force XXI is an attempt to create a system to manage the chaos of maneuver warfare. Although speed of information is critical to allowing commanders to identify and attack the enemy weak points throughout the depths of his formations, it is the trust in subordinate commanders to carry out mission type orders with little to no guidance in order to comply with the commander's intent that remains the key to success. In order to be successful, the Force XXI concepts need to help commanders deal with and capitalize on the chaos of the battlefield, not try to manage it.

[30] Fry, 3.

[31] Fry, 7.

[32] Fry's argument went against the accepted truth of the time (1950s post Korean War Army) that said combat experience was the best and only way to "truly" prepare soldiers and units for combat. Fry's arguments are important for a number of reasons. First, he is a highly experienced combat infantry commander with the 88th Division in World War II and the 2nd Division in Korea as a Regimental and Division commander. Second, because he was one of the first officers to develop and publish a logical argument for combat training. His arguments are the genesis of today's training doctrine.

[33] Fry, 7.

[34] Fry, 8.

[35] O'Mara, Francis E., *Relationship of a Unit Training and Personnel Factors to Combat Performance* (Alexandria, Virginia: Army Research Institute, 1989), iv.

[36] Hallmark, Bryan W., Crowley, James C. *Company Performance at the National Training Center: Battle Planning and Execution* (Washington: Rand, 1997), xvii.

[37] Ferry, Charles P.,"Mogadishu October 1993: A Company XO's Notes on Lessons Learned," *Infantry Magazine*, November-December 1994, 32.

[38] Ferry, 32.

[39] Drills were seen as the most important of training exercises. Additionally, incorporating realism such as limited visibility conditions, noise, re-supply, casualty evacuation, and a un cooperating OPFOR were all determined as keys to successful units at JRTC.

[40] Dupuy Trevor, N. *Understanding War* (New York: Paragon House Publishers, 1987), 7. Dupuy argues that the thirteen timeless verities of combat are as applicable and true in the most recent wars of the past 15 decades as they were in Napoleon's day andas they were in the days of Alexander, Hannibal, Julius Caesar, Genghis Khan, Gustavus, and Frederick. The reason for this is that, despite many changes, the essential nature of war has not changed. Wars are fought by men, and there are no discernible differences in the fundamental nature of man over the past five thousand years of recorded history. Because the nature of man has not changed, neither has his basic objective when he turns to war, the employment of lethal instruments to force his will upon other men with opposing points of view.

[41] Dupuy, 7.

[42] Field Manual 25-101, 1-4.

[43] Holz, Robert F, and McFann, Howard H., "Determinants of Unit Performance,". *Military Review*, May 1993, 24. This combined arms team was formed primarily by cross attaching mechanized infantry companies to armor battalions and armor companies to mechanized infantry battalions 3-4 months prior to the NTC rotation. This cross attachment occurred after the companies completed their Army Training and Evaluation Program (ARTEP) from their parent unit. Forming these "combined arms" Task Forces 3-4 months prior to deployment allowed them to train together before arriving at NTC. The results are simple to interpret. Those who trained together before arriving at NTC had better results than those who did not.

[44] Colonel Kutter argues that each school house (infantry, armor, combat service support, engineer, air defense, military intelligence, aviation) sets its own parameters for the doctrinal employment of its forces on the battlefield. This approach leads to very parochial views from each of these institutions which often frustrate the Task Force commander as he attempts to synchronize and integrate them on the battlefield. Second modular force designs means that units are not organized as a combined arms team but rather task organized on the battlefield. This leads to integration problems, as units are not used to habitually working with each other. These types of units (modular) are

efficient from a peacetime administrative sense, but that does not square with the human factor of battlefield effectiveness.

[45] Kutter, Wolf D. "10th Mountain Division at JRTC," *Military Review*, November 1989, 23.

[46] Doubler, Michael D., *Busting the Bocage: American Combined Arms Operations in France, 6 June-31 July 1944* (Fort Leavenworth, Kansas: United States Army Command and General Staff College, 1988), 1.

[47] Doubler, 2.

[48] Blair, Clay, *The Forgotten War: America in Korea 1950-1953* (New York: Anchor Press Book, 1987), xi.

[49] Blair, xi.

[50] Dyer, Jean L., Fober, Gene W., Pleban, Robert J., Salter, Margaret S., Valentine, Patrick J., and Thompson, Thomas J. *Light Infantry Performance at the Combat Training Centers: Home Station Determinants* (Fort Benning, Georgia: United States Army Research Institute Fort Benning Field Unit, 1992), ii.

[51] Dyer, iii.

[52] O'Mara, Francis E. *Relationship of Unit Training and Personnel Factors to Combat Performance* (Alexandria, Virginia: United States Army Research Institute for the Behavioral and Social Sciences, 1989), ii.

[53] The Center for Army Leadership (CAL) has identified the following as the leadership competencies: Communication, Decision Making, Flexibility, Initiative, Motivating Others, Planning, Soldier/Team Development, Supervision, Teach/Counsel, Technical/Tactical Proficiency, and Trust in Subordinates. O'Mara used these competencies as the baseline for evaluating leadership performance of units at the National Training Center (NTC).

[54] Downing, 22.

[55] Downing, 19.

[56] Downing, 22.

[57] Downing, 22.

[58] Downing, 24. Knowledge such as the range and effects of weapons and radios, immediate action drills and repairs, field expedients and the integration of firepower, mobility, and logistics systems are all tools every soldier must acquire. Battle and crew drills are immediate reaction of a small unit to a situation or to a command, but they are not tactics. They require no deliberate decision making process. Tactics starts the art portion of the equation.

[59] Brennan, Butch, Thoughts on Training Leaders How to Fight. Unpublished Article, Fort Leavenworth, Kansas: United States Army Command and General Staff College, Initiative Oriented Fighting for Brigade and Battalion Executive Officers, A306, 1998, 350.

[60] Brennan, 351.

[61] Brennan, 352.

[62] Brennan, 355.

[63] Brennan, 356.

CHAPTER 4

OPTIMAL TRAINING PROGRAM

> Except for weapons qualification the methods by which training is conducted, while outlined in general concept in FMs 25-100 and 25-101, do not appear in detail in any reference we examined.[1]
>
> RAND's Report on Company Performance at the National Training Center 1997

The optimal training program applies the lessons extrapolated from historical examples and develops a methodology that gives infantry commanders a foundation for success. It is not designed as a "magic bullet" solution that guarantees success in combat. Rather, it presents the author's view on the optimal blend of training events, frequencies, and methods that produce units prepared for the rigors of combat.

The optimal training program appears very similar to what is listed in standard training doctrinal manuals. The differences are in some of the events themselves (specifically the concept of weapons and gunnery training), the frequencies, and description of the events.

The objective of this program is to blend the art and science of military operations. My observations and experiences show that current United States Army training programs spends too much time on the science portion of the equation. The optimal program presented here attempts to incorporate the art portion of the equation. This is particularly true with training events that focus of developing initiative and reaction to stress.

Training Event	Recommended Frequency
Physical Fitness	Daily
Weapons Training	Weekly
Gunnery Training	Weekly
Weapons Qualification	Semi-Annually
Gunnery Qualification	Semi-Annually
Crew Drills	Monthly
Squad/Section/Platoon Battle Drills	Monthly
Company/Team Field Training Exercise	Quarterly
Battalion Field Training Exercise	Annually
Combat Training Center Rotation	Every 12-18 Months

Physical Fitness

Physical fitness training is recommended as a daily event. This is similar to current Army training philosophy and almost every unit training regulation or standing operating procedure (SOP). The principles of physical training, as outlined in Field Manual (FM) 21-20, are well established and need little modification. The difference in this program is the addition of training events that cause stress and fatigue to soldiers, leaders, and units. As discussed by numerous authors (including Grange, Moore, David, and Fry), stress and fatigue are consistent characteristics of ground combat operations.

Training events that push soldiers beyond their physical limits and force them to draw on their mental conditioning in order to succeed are critical to this concept.

Numerous historical examples support this concept. One of the best is Colonel William David's Task Force 2-14 Infantry in Mogadishu, Somalia October 1993. Task 2-14 Infantry fought a continuous battle for over 17 hours against a determined enemy in urban terrain. The Task Force successfully executed numerous combat operations as a Quick Reaction Force in support of Task Force Ranger. Colonel David directly attributes the battalion's success to its physical and mental conditioning program.[2]

Another excellent example of physical fitness and mental toughness is the case of 1-7 Cavalry, 1st Cavalry Division, during the battle for Landing Zone X-Ray, November 1965, Ia Drang Valley, Vietnam. First Battalion, Seventh Cavalry, under the command of then LTC Harold G. Moore, air assaulted into the Ia Drang Valley on mission to locate and destroy a suspected enemy base camp. They fought a fierce battle against elements of three North Vietnamese Army regiments for over 48 hours. The success of the battalion has been attributed to its mental toughness forged during peacetime training exercises.[3]

Numerous training events accomplish the objective of physical and mental conditioning. These include but are not limited to, the 25-mile foot march and the 72-hour "mangadai" leader exercise.[4] The purpose here is not to list every conceivable stressful training exercise. Unit leadership can pick and choose which events best suit their mission. Rather it is to establish the principle of using physical fitness to train and

condition soldiers for the aspect of stress and fatigue (critical component of ground combat).

Weapons Training

Weapon's training is recommended as a weekly training event. This is a radical departure from current Army training practices, which is focused primarily on weapons qualification as opposed to training. Another recommended change from current Army training practices is to incorporate the weapon and the soldier as a system. This includes incorporating night vision devices, daylight optics, laser range finders, and other technological advances into weapons training programs. Weapon's training is defined as range-firing exercises designed to teach soldiers the capabilities and limitations of their individual and crew served systems. Although some training programs are outlined in the various field manuals that cover weapon systems, there is no doctrinal approach to this type of training.

The objective of weapon's training is to teach soldiers how to employ their systems under various conditions and circumstances. Designing field firing exercises with various conditions accomplishes this purpose. Conditions in this sense are defined as the effects of the physical environment on the shooter. The conditions should include as a minimum variations in range, visibility, target exposures, target profiles, firing positions, and physical stress on the shooter. This list is not exclusive and variations are left up to unit leadership.

Variation in conditions to support weapons training is a concept that is well supported by historical example. James C. Fry in his book, *Assault Battle Drill*,

consistently talks of the need to enforce realistic conditions in training exercises. "Fundamentals are learned on the training ground. Experience comes on the battle ground.[5]" In order to train the fundamentals on the training ground the conditions must replicate those found on the battlefield. These conditions include visibility, noise, target arrays (to include size, shape, and moving targets), and mental and physical stress on the soldiers.[6] Fry's arguments are supported by his extensive combat experience in World War II and the Korea.

The key to weapon's training is repetitive execution. Large amounts of ammunition are not required. Rather, consistent shooting allows soldiers to gain a feel and comfort level for their systems. Numerous sources including Fry, English, and the Army Research Institute's (ARI) light infantry CTC study as well as the author's personal experiences support this concept.

My personal observations have shown a trend in which soldiers who shoot more often are better marksmen. My experiences include both the Berlin Brigade and 10th Mountain Division in which this concept was applied. In the Berlin Brigade the author participated in an officer exchange program with the British Army (1st battalion, Glostershire Regiment) from January through April 1987. The British unit I was assigned to conducted weapons training on a weekly basis. This produced soldiers who could consistently engage targets at a higher rate than their American counterparts. I later applied this technique as a rifle company commander in the 10th Mountain Division, which again produced soldiers who consistently outperform their counterparts

in the battalion. The more a soldier is allowed to shoot his weapon, the more proficient he becomes.

Gunnery Training

Gunnery Training is also recommended as a weekly training event. Similar to weapons training, this is also against current Army training practices. Unlike weapon's training, which consists of small arms systems, gunnery training centers on combat vehicle weapons systems. The four primary infantry gunnery systems are the M2 Bradley Infantry Fighting Vehicle (IFV), the M966 TOW High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), the MK19M3 automatic grenade launcher (mounted on M966 HMMWV or ground mounted) and the various mortar systems (60mm, 81mm, and 120mm) in both dismounted and tracked vehicle mounted (M106 mortar carrier) configurations. The same weapons training principle applies to gunnery training, the more a soldier is allowed to shoot his weapon system, the more proficient he becomes with it.

Gunnery training also constitutes a departure from standard Army training practice, which is focused primarily on qualification as opposed to training. High costs have traditionally limited gunnery training events. The costs of both operating the combat vehicles and ammunition expenditures for these systems are relatively high in relation to other training events. Unfortunately, these circumstances normally mean very limited gunnery training taking place.

Historical examples and my own personal observations support the importance of gunnery training. LTC Robert Rigg developed the Tank Leader's Reaction Course at Fort Knox, Kentucky in the early 1950s. This course was designed to prepare tank crews for the shock and stress of combat.[7] Although designed for tank crews, the concept easily applies to infantry weapon systems. Rigg's intentions were to place the tank crews in a realistic scenario where the features of combat were combined to bring the soldiers under stress.[8] The objective was to teach tank crews how to make decisions under stress and execute the skills they had learned previously on the gunnery ranges. Rigg recognized that gunnery skills were not useful unless they could be employed under realistic combat conditions.

My personal observations also support this concept. As both an Observer/Controller and battalion operations officer at the Combat Maneuver Training Center (CMTC) I consistently observed the difficulty of combat vehicle crews in linking their gunnery skills to tactical maneuver. Specifically, gunnery training focused too much on the science of precision gunnery.[9] Too much emphasis was placed on this fact alone without considering how to incorporate precision gunnery skills into tactical maneuvers. Units consistently adopted new techniques during force on force maneuvers to compensate for this deficiency in gunnery training, which resulted in weak performances by these crews and their units.

The best success in gunnery training I have observed involved linked gunnery and maneuver skills under combat conditions. It used the standard Army gunnery (both for tank and mechanized infantry) training event of crew proficiency course (Tank Crew

Proficiency Course-TCPC or Bradley Crew Proficiency Course-BCPC). These events are run very similar to Rigg's Tank Leader's Reaction Course. The focus is on both tactical decision making and target acquisition and engagement.[10]

Additionally, Combined Arms Live Fire Exercises (CALFEX) based around a Bradley or Tank Table XII scenario are also excellent gunnery-maneuver linkage training events. This is particularly true when the conditions for these events are flexible and not known well in advance. This type of event forces a unit to develop gunnery skills and techniques that can be used with tactical maneuver.

Training Aids and Devices Simulation Systems (TADDS) are best used to help offset these costs while providing realistic gunnery training. Devices such as the Conduct of Fire Trainer (COFT) and the Tow Gunnery Simulation System (TGSS) are two systems that best support this concept. Additionally, the Simulations Network (SIMNET) and Close Combat Tactical Trainer (CCTT) are two systems designed to link gunnery and maneuver training. All of these systems allow units to execute gunnery-training tasks and stay within resource constraints.

The actual tasks of gunnery training are well laid out in the appropriate field manuals (FMs) for each of the mentioned weapons systems and need not be mentioned here.[11] Similar to weapons training the key is repetitive execution under varying conditions. The more a soldier is allowed to shoot his weapon system, the more proficient he becomes with it.

Weapons and Gunnery Qualification

Weapons and gunnery qualification are recommended as semi-annual training events. This represents no change from standard Army training doctrine. Changes are recommended, however, for the actual qualification tables. The concept is to make them more difficult and challenging. Currently the tables are too predictable and limited which does not represent the difficulties of ground combat. In other words, qualification tables look nothing like combat conditions.

Currently weapons and gunnery qualification practices are more concerned with the "numbers," i.e., how many soldiers successfully passed the test and with what scores. Currently, the test does not accurately represent expected battlefield conditions. Qualification has become an end to itself. Just another statistic of training events to be accomplished in a prescribed program. My objective is to change qualification into an evaluation of a soldier's ability to acquire and engage targets under various battlefield conditions that best represent expected combat conditions. It makes little to no sense to test soldiers under conditions that don't represent combat conditions.

Historical evidence and my personal observations support the idea that high gunnery and weapons qualification scores don't necessarily produce strong maneuver performance. The Rand Corporation's observations from the National Training Center, *Company Performance at the National Training Center: Battle Planning and Execution* indicates that weakness of integrating fire and maneuver skills in the majority of company/teams observed.[12] Additionally, I have observed units who consistently scored above 900 (out of possible 1000 points) on gunnery qualification ranges and yet had poor performances during force on force exercises.[13]

Similar problems exist for the light forces in regards to weapons qualification. The objective of weapons qualification tables is to make the soldier acquire and successfully engage targets under varying conditions. The following are the recommended changes to the program:

1. Increase the variety of firing positions to include kneeling and walking quick fire positions.

2. Increase target array to include moving targets.

3. Add stress to the shooter by requiring an individual movement technique (IMT) phase.

4. Change limited visibility tables by adding a full array of targets (50-300 meters) and the addition of night vision devices and or artificial illumination.

These changes are designed to make qualification tables more closely resemble actual combat conditions.

These changes to weapons qualification ranges are consistent with numerous historical examples as well as my own personal observations. Captain Charles P. Ferry in his article, "Mogadishu, October 1993: A Company XO's Notes on Lessons Learned," argues that the best preparation for combat is tough realistic live fires starting at the individual level.[14] The ability of soldiers to acquire and engage targets under stressful combat conditions was critical to the success of his unit.[15] My own personal observations support this claim. The trend of my observations is that soldiers can consistently score high on qualification ranges but have difficulty acquiring and engaging targets during tactical live fire exercises. The noise, stress, physical exhaustion, limited visibility (due

to smoke, fog, or dust), and confusion consistent with live fire exercises ads difficulty to this task. These conditions are not present on qualification ranges and thus soldiers are not being tested under expected combat conditions.

Gunnery qualification also requires adjustments. Gunnery qualification ranges suffer from the same fate as small arms qualification ranges. They are too predictable and limited, which does not accurately represent combat conditions. Specifically, little to no maneuver is required as part of the qualification table. Recommendations for gunnery ranges are as follows:

1. Incorporate more cross-country maneuver and eliminate as much as possible course roads.

2. Incorporate tactical decision-making. Specifically, design the range to force crews to think about how to best engage the target.

3. Increase difficulty of target array. Specifically, design the range complex so high magnification can't be used to cover the entire range. Force the use of scanning and development of target acquisition skills by the crews.

These changes will assist units in eliminating the problem of not linking skills developed in gunnery to their maneuver tactics. The reasons are the gunnery conditions under which units do not represent the conditions they face in force on force exercises. Thus they (units) tend to disregard gunnery training skills or attempt to use the same techniques that were successful on the predictable gunnery ranges. In both cases the results are ineffective. There is little to no application of gunnery skills to maneuver tactics. The former is inherently important to the development of the latter.[16]

Crew Drills

Crew Drills are recommended as a monthly training event. This includes crew served weapons and combat vehicle systems. The specifics of the crew drills for the different weapon systems are laid out in the appropriate field manual for each system. No changes from current Army standards are recommended. Frequency of the event is the only change from current standards. While there is no Army wide standard for crew drill training frequency, most units execute this type of training three to four times per year in preparation for major training events.

Proficiency in crew drills provides the background and training base for platoon and company level tactics. This is supported by the Army Research Institute (ARI) study, *Light Infantry Performance at the Combat Training Centers* and my personal experiences. The ARI study found that units who emphasized crew drills under realistic combat conditions performed significantly better than those who did not.[17] ARI defined realistic combat conditions as limited visibility, mission oriented protective posture (MOPP), a realistic opposing force, and a uncertain enemy situation. My personal observations support ARI's findings. Additionally, I have observed the trend of perishable skills. Crew drills by their very nature require the interaction of two or more soldiers working as a team to accomplish a specific task. The natures of the tasks are not exceedingly complex. The skills required to execute them, however, are perishable. The best way to develop and maintain proficiency in this process is through repetitive execution of the event.

Squad, section and platoon battle drills are recommended as a quarterly training event. This includes both infantry squads (light) and mounted (mechanized) sections and platoons. The specifics of the battle are sufficiently detailed in Army Training and Evaluation Programs for both light and mechanized infantry forces.[18] No changes from current Army standards are recommended. Frequency of the event is the only change from current standards. While there is no Army wide standard for battle drill training frequency, most units, as mentioned previously, execute this type of training three to four times per year in preparation for major training events.

Battle Drills

Proficiency in battle drills provides the foundation and training base for company and battalion level tactics. Battle drills by nature require the interaction of 6 or more soldiers working as a team in order to accomplish a specific task.[19] The essence of a battle drill is the execution of an immediate action in response to a specific Que from the enemy. The action requires no deliberate decision making process. It is rather an immediate reaction to a stimulus on the battlefield. Experience has shown that the speed and violence of which these drills are executed can often be the difference between success and failure on the battlefield.

Historical examples and my own personal experiences show the importance of battle drills. Major General (ret.) James C. Fry stresses the importance of battle drill in preparation for combat. His arguments are based on his combat experiences in World War II and the Korean War. He argues, "through instinct, repeated drills, and practice, men can be taught exactly what is expected of them under combat conditions.[20]"

Additionally, Fry emphasizes that practice and repetition are key factors in mastery of battle drills:

> The key to smooth platoon battle drill is repeated practice. Only by repetitive instruction is it possible to develop platoon coordination necessary to prepare troops for combat... However, there are no short cuts. Only through hard or even harsh repetitive battle exercises will close appreciation of individual behavior and teamwork be absorbed.[21]

My personal observations support Fry's arguments. The trend I have observed is that units who practice battle drills on a repetitive basis are more successful than those who don't. Proficiency and coordination are the keys to success: practice and repetition gain them. Battle drills, by their very nature, are collective actions executed by a platoon or smaller element without applying a *deliberate* (author's emphasis) decision making process.[22] Success requires instant recognition of the situation presented and then an immediate application of the appropriate drill to meet the situation. The best way to develop and maintain proficiency in this process is through repetitive execution.

Company/Team Field Training Exercises

Company/Team Field Training Exercises are recommended as a quarterly training event. The specifics of the tasks associated in these exercises are sufficiently detailed in Army Training and Evaluation Programs for both light and mechanized infantry forces.[23] No changes from current Army standards are recommended. Frequency of the event is the only change from current standards. A word of explanation is required here. While Army Regulation 350-1 does not mandate a specific standard for company/team field training exercises: most units rarely execute this type of training more than once a year in preparation for a major training event (i.e. Combat Training Center Rotation).

Field training exercises are designed to train two critical components of ground combat: the integration of combined arms and developing initiative. No change to the definition field training exercises is recommended. It is an exercise that fully integrates all the combined arms systems of a company/team under realistic combat conditions against a freethinking opposing force.

The underlying characteristic is the uncertain nature of the battle field conditions. Unlike weapons, gunnery, and battle drill training, the conditions are not firmly established nor published prior to the exercise. The objective is not just evaluating the reaction of a unit to a set que, but to evaluate the unit to a series of changing conditions. The purpose of this type of training is for the company/team to gain experience at fighting in uncertain conditions. Units must read the battlefield, decide what must be done, issue the orders, and execute in order to be successful.

Numerous historical examples as well as my personal experience support this type of training concept. Michael D. Doubler in his Combat Studies Institute (CSI) pamphlet, "Busting the Bocage: American Combined Arms Operations in France, 6 June–31 July 1944," identifies the problems that hampered the First United States Army during the weeks immediately following the D-Day landings in Normandy.[24] Doubler points out the shortcomings in pre-invasion training had on operation in the Bocage (as the Normandy hedgerow country was known in French). Of particular note is the lack of combined arms training and initiative of company and battalion level commanders. A senior operations officer in the United States VII Corps (unit conducting the main attack in the First Army's sector) noted the problems:

> The exact details of how tanks and infantry should work together were largely neglected until infantrymen and tankers found themselves thrown together among the hedgerows. Many commanders at the company and battalion level were inexperienced in integrating the components of the combined arms team... More combined arms training for infantry commanders are needed. They should know how to use all their tools. ... We have had to teach this in battle the hard way.[25]

The uneven and compartmentalized terrain of the Bocage combined with the tactical abilities of the German Army presented significant challenges to the American forces. The First Army eventually overcame this situation, through flexibility, and determination in battle, coupled with ingenuity and innovativeness in the use of weapons.[26] The lack of pre-invasion training that stressed combined arms integration and development of the initiative by subordinate commanders led to this problem.

Albert Garland in his book, *Infantry in Vietnam: Small Unit Actions in the Early Days, 1965-1966*, discusses the importance of initiative in an operation conducted by 2nd Battalion, 5th Cavalry, 1st Cavalry Division, near Bong Son Vietnam. Garland discusses the impact initiative on success of the operation.

> By anticipating the battalion commander's order, Captain Fincher had made the necessary preparations to assemble his company within assault range of the enemy's positions and to be there at the right time to assist the hard pressed B company. Initiative of the kind shown by Fincher is often the necessary ingredient to inspire fighting men to victory, for soldiers will quickly unite behind a commander who meets unexpected situations with prompt actions, who sees what has to be done and anticipates a course of action before orders are given. In an environment that allows the enemy freedom of movement, the unexpected can be expected; the side that wins will be the one that can exercise the most flexibility, initiative, and daring.[27]

Company field training exercises are designed to develop this sense of initiative and prompt actions in response to the unexpected.

My own personal observation support the idea put forth by Doubler. Integration of combined arms tactics and development of initiative are first established at the company/team level. The trend of success has been units that practice these tasks on a regular basis. Integration of combined arms is a complex task. It requires the leaders and the units to understand the capabilities and limitation of each supporting weapon system and unit. Developing initiative in leaders also takes time. The best way to do this is through repetitive practice.

The concept of unpublished conditions or events for a training exercise is not in alignment with current Army training doctrine.[28] As described by Brennan, this is outside many leaders comfort zone.[29] It requires a change in philosophy in order to embrace this concept. The purpose is to force a unit to think and react to ever changing battlefield events. Set piece events with clearly established conditions rarely if ever exist in combat. We must train under the conditions we expect to fight. This leads to a question of whether current Army training doctrine supports how we expect to fight in combat? This issue will be addressed later in the chapter as a question for future research.

Battalion Field Training Exercises

Battalion Field Training Exercises are recommended as an annual training event. The purpose of this event is simple: train the battalion task force how to fight using all its battlefield operating systems (BOS).[30] The battalion task force is the first level of tactics where the full effects of the battlefield operating systems are felt. This allows for significant increases in the generation of combat power were the whole is greater than the sum of its parts.

Numerous historical examples support this concept of combat power generation. An example is the battle for Landing Zone X-Ray in November 1965. First Battalion Seventh Cavalry was able to employ the combat effects of its supporting battlefield operating systems to significantly increase its combat power and defeat a numerically superior enemy force.[31] LTG (ret.) Harold Moore, commander of 1-7 Cavalry, describes the pre combat combined arms training that later proved critical to success on the battlefield.

> During the fourteen months before we sailed to Vietnam, we spent most of our time in the field, practicing assault landings from helicopters, and the incredibly complex coordination of artillery, tactical air support, and aerial rocket artillery with the all important flow of helicopters into the battlefield.[32]

Four of the critical components of ground combat: fighting as combined arms teams, leadership, stress, and developing initiatives are trained during battalion field training exercises. Similar to field training exercises at the company/team level, neither published standards nor agenda should be posted prior to the exercise. Again, this runs counter to current Army training doctrine. The purpose is to deliberately put the battalion leadership in situations that require them to think and fight against a willful and freethinking opposing force.

The battalion field training exercise must last long enough in order to induce stress and a full integration of combat service support tasks. Specifically sleep deprivation among leaders is a critical tasks that must be addressed. The length and tempo of the operations must be intense enough so leaders can't stay awake the entire time. My personal observations have shown that 72 hours (3 days) is normally the breaking point for a unit that has no leader sustainment plan. The average mission time

required (defined as plan, prep, and execute) is between 12 and 72 hours. Exercises need to last between 7 and 14 days in order to test the unit on multiple missions and stress the leadership.

Historical examples consistently support this point. The battle for LZ X-Ray lasted almost 60 hours and the operations in Mogadishu Somalia for over 17 hours. In each case the tempo and duration of the engagements stressed the leadership of the battalion.

Additionally, combat service support systems need to be tasked beyond their limits and capabilities. The leadership must develop solutions that address these shortfalls. This is a critical point. Too many times in training exercises we wish away problems or shortfalls in the combat service support areas. This is done for two reasons: one, out of conveyance of setting up the training exercise, and two because it is believed that maneuver is the greatest reason for success or failure and is critical in training.

History is full of examples of where combat service support systems significantly impacted on the outcome of a battle or campaign. The operations in Mogadishu Somalia resulted in higher casualty rates because of poor integration of combat support systems into the plan[33]. Additionally, my personal experiences support this idea. As a light infantry battalion S3 conducting operations in a desert environment, maneuver operations consistently ground to a halt or came up short of their intended objectives, because of lack of water and a casualty evacuation plan.[34]

Combat Training Center Rotation

Combat Training Center Rotations are the final event in the optimal training program. Very little change to the current philosophy of combat training center rotations is required. All the critical components of ground combat are sufficiently addressed in these rotations. Combat Training Centers are the best replication of combat conditions that can be created in a peacetime environment. They represent the pinnacle in resources to support training a unit for combat. In order to take full advantage of those resources units must be sufficiently prepared before they arrive. The above-described training program is designed to accommodate this need.

Resource Restraints

The optimal training program described above requires more resource than are currently allocated to the average infantry battalion. The objective of this study is not to develop a training program that fits within current resource constraints, but rather to develop a program that best prepares a unit for combat. That being said, resource constraints are a realistic fact of life that all infantry units must address. I would be remised not to address this issue.

The major resource requirements that are needed are an increases in operational tempo (OPTEMPO) funding for combat vehicles, ammunition allocations, training area availability, and an upgrade in weapon and gunnery qualification ranges. While this will not be a major argument on budgetary procedures and allocations a couple of areas are highlighted to provide clarity of example.

First, OPTEMPO funding is currently inadequate to support the optimal training program. Existing (using Fiscal Year FY 98 Budget figures) allocates 800 miles per combat system (M1 tanks and M2 Infantry Fighting Vehicles) per year. However, analysis of these figures shows that on average only 555 miles are dedicated to training.[35] The remainder is being diverted to fund other budgetary items. The optimal training program calls for more driving of combat vehicles than is done now. If 800 miles are barely supporting the current training schemes, then increases in OPTEMPO are required to support the optimal training program.

Ammunition allocations also require significant increases. The current Standards in Weapons Training (STRAC) (DA PAM 350-38) allocates enough ammunition to execute qualification twice a year and for a few collective training exercises (squad, platoon, company, or battalion levels). No ammunition is allocated for weapons or gunnery training exercises. Increases are required to meet these training events.

Training area allocation is also in short supply. This is particularly true for units forward deployed overseas. This situation is seriously limiting training strategies as units are competing for these scarce resources. The result is units getting infrequent opportunities to train and maneuver. This is in direct opposition to one of the major premises of the optimal training program: repetitive execution. Without sufficient training area allocation, units can never hope to achieve the level of proficiency required for success in combat.

Weapons and gunnery qualification tables and ranges are inadequately setup to replicate realistic combat conditions. Qualification tables are too easy and generic and

they do not represent the conditions units will most likely face in combat. A major overhaul of both qualification tables and the physical range layouts are required in order to rectify this problem.

This study has identified two questions for future research. First, is training being resourced to an adequate level to support successful combat preparation? Second, is there a conflict between current training warfighting doctrine? Both of these issues have been raised in the discussion of optimal training events. Addressing these issues is considered the next logical step in supporting the optimal training program. It is not that these issues are relevant to the question of training and combat preparation. To the contrary, they are extremely relevant. Unfortunately, any worthwhile analysis of these issues is too complex to be addressed here.

In conclusion, historical analysis combined with my personal experience has identified eight critical components of ground combat. The training program developed addresses these eight critical components and is recommended as the optimal solution to the problem. It is by no means the only solution, and adherence to it does not guarantee success in combat. It represents the experiences of infantry leaders from World War II until the present. Their experiences guide us from the pages of history as a beacon from a lighthouse on a dark stormy night.

The significance of this study is simple. Short of war, training for combat is the first priority for infantry battalions. Today's environment of increased mission requirements and reduced training opportunities demands that training programs be efficient as possible. Identifying the optimal training program for success in ground

combat is critical to success in this environment. More importantly, the ultimate success is saving the lives of United States Army soldiers by best preparing them for ground combat operations in peacetime so they do learn the bloody lessons in the first battle.

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[1] Hallmark, Bryan W. & Crowley, James C. *Company Performance at the National Training Center: Battle Planning and Execution* (Santa Monica, California: Rand Corporation, 1997), 60-61.

[2] For a more complete detailed account of the preparation see LTC William David's article in *Infantry Magazine*, "Preparing a Battalion for Combat: Physical Fitness and Mental Toughness," May and June 1995. For a more detailed account of the actions in Mogadishu, Somalia October 1993 See, Mark Bowden, *Black Hawk Down: A Story of Modern War* (New York: Atlantic Monthly Press), 1999.

[3] For a more detailed account of the battle for Landing Zone X-Ray and the actions of 1-7 Cavalry see, Moore Harold G. and Galloway, Joseph L. *We Were Soldiers Once... and Young* (New York, Random House), 1992.

[4] See Sean Naylor, *Army Times Magazine*, 8 February 1999, "One Awesome Soldier: What You Can Learn From the Leader of the Big Red One" for a more detailed account of the Mangadai exercise and the leader training philosophies of Major General David Grange. Additionally see Jean Larteguy, *The Centurions.* New York: E.P. Dutton & Co., Inc., 1962 for a more detailed account of the mangudai.

[5] Fry, James C., *Assault Battle Drill* (Harrisburg, Pennsylvania: The Military Service Publishing Company, 1995), 11.

[6] Fry, 11.

[7] Rigg, Robert B., *Realistic Combat Training and How to Conduct It* (Harrisburg, Pennsylvania: The Military Service Publishing Company, 1955),1.

[8] Rigg, 2.

[9] My observations are that the emphasis of gunnery training becomes how to best score on qualification only. Great amount of time and resources are spent on learning (I could even argue memorizing) the range engagements in an attempt to score the best. The tactical decision making process is eliminated from this type of training. Combat vehicle crews are not learning the skills required to effectively employ their systems

under realistic combat conditions. Thus when faced with more realistic combat conditions (usually in force on force training) they are inventing techniques on the fly to adapt to the changes in conditions. I argue that this scenario defeats the purpose of gunnery training. Gunnery training must incorporate realistic combat conditions in order to effectively train crews and develop skills and techniques they can use in tactical maneuvers. Very few units work to link gunnery skills to their tactical maneuver skills.

[10] The key to this TCPC/BCPC course is the conditions it is set in. Develop the course to replicate the conditions the crews will find themselves in combat. Get the crews off roads. Too many TCPC and BCPC courses run the crews along a course road that has a series of engagements that must be responded too. The vehicles rarely if ever leave the roads. Also, the target arrays are quite simple to acquire and easy to engage. The entire focus of the training event becomes successfully hitting the targets. Under the above-mentioned conditions this becomes an easy task for the crews. Crews then develop skills that work fine for TCPC / BCPC type course road but when the conditions change, these skills become useless and are quickly discarded. Use off road driving (i.e. cross-country) and complicate the target array. Make the crews work to acquire and engage the targets. Don't allow the crew to use high magnification to scan the entire range complex. Multiple Integrated Laser Engagement Systems (MILES) or Precision Gunnery Weapons Simulation System (PGWSS) and Tank Gunnery Weapons Simulation System (TGWSS) are excellent training devices for this process. Use a freethinking opposing force instead of wood targets to further enhance realism. This system proved extremely effective in developing gunnery skills that linked to maneuver tactics.

[11] See Field Manuals 23-1 (Bradley Infantry Fighting Vehicle Gunnery), 23-24 (TOW Gunnery), and 7-91 (Mortar Gunnery) for a more detailed description of gunnery tasks.

[12] Hallmark, Bryan W. and Crowley, James C. *Company Performance at the National Training Center: Battle Planning and Execution* (Washington: Rand Corporation, 1997), xiv-xvi. This is a summary of the observations reported by Rand. Company/Teams consistently had difficulty linking gunnery (direct fire) and maneuver skills. Some units could maneuver well, but could not effectively acquire and engage targets while others had the exact opposite effects. See the full report in the above-mentioned publication for a more detailed discussion of their observations.

[13] My observations come from 4 plus years at the Combat Maneuver Training Center (CMTC) in Hohenfels Germany. Units would rotate into CMTC for force on force maneuvers (ranging from Company/Team to Battalion Task Force level) against a free thinking opposing force. All units came to CMTC immediately after completing gunnery training and qualification at Grafenwohr Training Area. The majority of the units I observed had gunnery scores averaging 900. Yet these same units could not engage targets at the same success rate during force on force maneuvers against a

freethinking, willful opposing force. My observation is that the conditions under which they executed gunnery qualification don't come close to replicating the conditions presented to them on the force on force battlefield. Changing gunnery qualification conditions is required to fix this problem.

[14] Ferry, Charles P., "Mogadishu, October 1993: A Company XO's Notes on Lessons Learned," *Infantry Magazine,* November-December 1994, 32.

[15] See Ferry, "Mogadishu, October 1993: A Company XO's Notes on Lessons Learned," for a more detailed account of his unit's experiences and preparation for combat in Mogadishu, Somalia.

[16] This becomes both an institutional and installation challenge with respect to gunnery range setups. Administrative conveniences and safety considerations have diluted the effectiveness of these events. Without a range complex that represents likely combat conditions, gunnery skills are not going to be linked to maneuver tactics.

[17] Dyer, Jean L., Fober, Gene W., Pleban, Robert J., Salter, Margaret, S., Valentine, Patrick J., and Thompson, Thomas, J., *Light Infantry Performance at the Combat Training Centers: Home Station Determinants* (Alexandria, Virginia: United States Army Research Institute, 1992), 32.

[18] See Army Training and Evaluation Plan (ARTEP) manuals concerning details of drills for the infantry squad, sections, and platoons. ARTEP 7-8 Drill Battle Drills for the Infantry Rifle Platoon and Squad: ARTEP 7-7J Drill Battle Drills for the Bradley Fighting Vehicle Platoon, Section and Squad: ARTEP 7-90 Drill Drills for the Infantry Mortar Platoon, Section and Squad: ARTEP 7-91 Drill Drills for the Infantry Anti-Tank Platoon, Section and Squad.

[19] Squads are the smallest units that execute battle drills. Anything below that are defined as crew drills. 6 is the smallest squad (for a mechanized infantry platoon) authorized in United States Army Infantry battalions.

[20] Fry, 7.

[21] Fry, 72.

[22] Department of the Army, *Army Training and Evaluation Program Number 7-8 Drill: Battle Drills For The Infantry Rifle Platoon and Squad* (Washington: United States Government Printing Office, 1991),1-1.

[23] See Department of the Army, *Army Training and Evaluation Program Number 7-10: Mission Training Plan (MTP) For The Infantry Rifle Company.* Washington: United States Government Printing Office, 1994. & Department of the Army, *Army Training and Evaluation Program Number 71-1: Mission Training Plan (MTP) The Tank and Mechanized Infantry Company and Company Team* (Washington: United States Government Printing Office, 1988)

[24] Doubler, Michael, D. "Busting the Bocage: American Combined Arms Operations in France, 6 June-31 July 1994," Fort Leavenworth, Kansas: Combat Studies Institute, 1988, 1.

[25] Doubler, 28-29.

[26] Doubler, 2.

[27] Garland, Albert, N. *Infantry In Vietnam: Small Unit Actions in the Early Days, 1965-1966* (New York: Berkley Publishing Group, 1982), 290-291.

[28] Current Army Training Doctrine calls for clearly established Tasks, Conditions, and Standards. These are published well in advance of training exercises. The purpose is for units to understand what is expected of them and assist leaders in developing training strategies to meet the requirements. This concept works well for certain training events, such as individual weapon proficiency, crew drills, and, battle drills. But uncertainty has been established as a characteristic of ground combat operations. Training to overcome this uncertainty is a critical component of any training strategy. Current Army Training Doctrine is deficient in this area. It is a question I pose for future research.

[29] Brennan, Butch, E., "Thoughts on Training Leaders How to Fight," 1998, Center For Army Tactics, United States Army Command and General Staff College, FT Leavenworth, Kansas.

[30] A typical "Slice" of battlefield operating systems for an infantry battalion are as follows: armor company or platoon, mechanized infantry company or platoon (for light infantry battalions), artillery fire support teams (FIST), engineer company (mechanized) or platoon (light), air defense battery, and tactical air control party (TACP) United States Air Force. The above listed are typical attachments found in almost every situation. Other elements could include (depending on mission analysis), forward area support company (FASCO) from Forward Support Battalion (FSB), military intelligence support team (MIST), military police platoon or squad, civil affairs detachment, and psychological operations detachment.

[31] See Harold G. Moore and Joseph L. Galloway, *We Were Soldiers Once... and Young,* for a more detailed account of the Battles in the Ia Drang Valley.

[32] Moore, 23.

[33] See Bowden, *Blackhawk Down: A Story of Modern War* for a more detailed report on the fighting in Mogadishu Somalia, October 3-4 1993 and the effects of the CSS plan on the outcome of the operation.

[34] See National Training Center Rotation 92-09 (1st Brigade. 1st Infantry Division and 1-87 Infantry, 10th Mountain Division) take home package for a more detailed account of these operations and the effects of a poor CSS plan on maneuver operations.

[35] See Army Times, 8 February 1999 issue for a more complete analysis of OPTEMPO figures in heavy divisions. The figures are attributed to the Army Staff and confirmed by an official spokesman, LTC Lew Boone.

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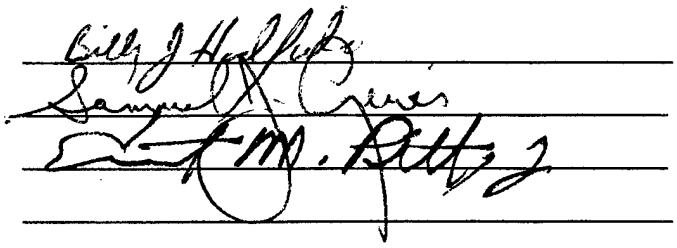

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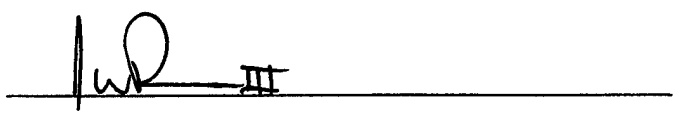
7. MMAS Thesis Author's Signature: 

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